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**G U I D E
T O T H E
M I L I T A R Y E X A M I N A T I O N .**



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G U I D E
TO THE
MILITARY EXAMINATION.



GUIDE TO THE MILITARY EXAMINATION,

CONTAINING EVERYTHING RELATING TO THE

INTERIOR ECONOMY OF A COMPANY,

AND

HOW TO KEEP ITS ACCOUNTS,

ACCORDING TO THE LATE HORSE GUARDS CIRCULAR;

The Constitution, Form, and Power of Courts-Martial:

ALSO

TREATISES ON

CASTRAMETATION, ESCALADING, THE CONSTRUCTION OF
VAUBAN'S FIRST SYSTEM OF FORTIFICATION, AND
GARRISON GUNNERY AS APPLICABLE
TO THE LINE.

BY LIEUTENANT MARTIN
18TH ROYAL IRISH.



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P R E F A C E.

IN submitting this little work to my brother Officers, it is with the hope that they will find it useful in preparing for the Military Examination, and also as a book of reference, as it treats of everything concerning a Soldier, from the time of his Enlistment to that of his Discharge.

I have endeavoured to collect from the most authentic sources, and to condense as much as possible, the several subjects it embraces; and as it is highly essential that all soldiers should have a practical knowledge of the Garrison Gun Exercise, I have added a short treatise on that subject, which I trust will prove acceptable.

T. M.

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SYNO

- | | | |
|---|---|-----|
| 1 | Death. <i>Cl. 20. Art. 116.</i> | nor |
| 2 | Transportation for life, or for a specified term | or |
| 3 | General service; or to serve for life if enlisted | per |

GUIDE

TO THE

MILITARY EXAMINATION,

&c. &c.

ENLISTMENT.

(*Mutiny Act, Clauses 55 and 56.*)

A MAN is enlisted, and becomes a Recruit, on accepting a Shilling for that purpose, from any person in Her Majesty's Service in uniform, and holding a "Beating order," or being otherwise duly authorized to raise Recruits.—(*Cl. 85.*)*

As soon as possible after enlistment, the Recruit must be taken to a Medical Officer for examination; if found "unfit" for the Service, he must be forthwith discharged from his engagement; the cause being recorded. If found "fit," and of the required age and stature, the 40th and 46th Articles of War must be read to him; and *within four days*, but not *sooner* than *twenty-four hours* after enlistment (any intervening Sunday not included), he must be taken before a Magistrate of the Town, or Borough, in which he was enlisted to be duly sworn in, and attested according to law.—(*Art. 3.*)†

An Act passed in 1847 limits the period of enlistment to 10 years; but at the completion of that period, a Soldier

* *Cl.* refers to Clause of the Mutiny Act.

† *Art.* Articles of War.

may re-engage himself for a further service of 11 years.—
(*Limited Service Act.*)

If a Soldier is ordered on Foreign Service within 3 years of the expiration of his first engagement, he may be re-engaged for 11 years more: if the second term expires while he is abroad, it may be prolonged for another 2 years.

Should a Soldier commit an offence a short time before the expiration of either terms, he will be considered to be in the Service until after trial; and if a man is absent from his duty by reason of imprisonment, &c., such time shall not reckon as part of his service.

When a Recruit declares his intention of paying "Smart" (1*l.* 1*s.*), it must be paid within 24 hours after such declaration.—(*Cl.* 56.)

A "Bounty" of 4*l.* is granted to each Recruit, which, on joining his Regiment or Depôt after "final approval," must be thus accounted for—

	£	s.	d.
To cash to recruit on attestation	0	2	6
„ regimental necessaries supplied	2	17	6
„ cash	1	0	0
Total	4	0	0

LIST OF NECESSARIES SUPPLIED TO A RECRUIT.

No.	£	s.	d.
3 shirts, at 2 <i>s.</i>	0	6	0
3 pairs of socks, at 1 <i>s.</i>	0	3	0
1 pair regimental boots	0	7	6
1 pair summer trousers	0	6	0
1 pair braces	0	0	8
1 pair mitts	0	0	8
2 flannel belts, at 1 <i>s.</i>	0	2	0
2 towels, at 8 <i>d.</i>	0	1	4
1 shell jacket	0	7	6
1 forage cap and number	0	2	4
Carry forward	1	17	0

No.		£	s.	d.
	Brought forward.....	1	17	0
1	haversack	0	0	10
1	knapsack and straps	0	12	6
1	canteen, and cover, and straps			
1	razor, 10d.; and soap-brush, 5d.....	0	1	3
1	knife, fork, and spoon	0	0	10
1	scissors.....	0	0	6
1	button-stick, and brush	0	0	5
1	tin of blacking	0	0	4
1	comb	0	0	4
1	stock and clasp	0	1	0
1	sponge, and pipeclay	0	0	4
1	cloth brush	0	0	8
1	set of shoe-brushes	0	1	0
1	holdall	0	0	6
Total.....		2	17	6*

Government grants yearly to each man,—one coat and shoulder straps, one pair ammunition boots,† and one pair black cloth trousers, which, together with the articles specified in the foregoing list, constitute what is termed the soldier's "kit"; each article must be distinctly marked, kept in good repair, and replaced at his expense when required.

Any Soldier losing through neglect, or otherwise making away with any portion of his kit, or indeed anything of which he has charge, subjects himself to be tried by Court-Martial; which, after placing him under stoppages not exceeding two-thirds of his daily pay, until the deficiency be made good, may further sentence him to such other punishment as it may have power to award.

There being no standard price for necessaries, Captains of Companies cannot be too particular in ascertaining that their men get supplied with the best procurable articles for the amount charged; nor should a Quartermaster be permitted to keep any article in his store that has not been duly approved of by the Captains of the Corps; and no issue should ever be made to the Soldier until it has been ascertained that he really requires it.

* Necessaries charged at the average Chatham prices.

† A Sergeant receives two pairs.

WEIGHT AND PRICE OF ARMS, ACCOUTREMENTS, AND NECESSARIES.

	Weight.	Price.		
		lb.	oz.	£ s. d.
Arms, acc'ts., & ammuna., lb. 32-64.	Percussion musket and swivels	10	5½	2 8 5
	Buff sling	0	5½	0 1 9
	Bayonet	1	0½	0 2 9
	Bayonet scabbard	0	5½	0 0 10
	Bayonet belt and plate	1	4½	0 5 0
	Pouch	2	13½	0 7 0
	Pouch belt	0	9½	0 3 6
	60 rounds ball cartridge*	5	7	1 0 0
	75 copper caps and tin box for do.	0	4	0 0 9
	Chaco complete, with ball (G)	1	1½	0 3 6
Necessaries on person, lb. 10-16½.	Coatee and shoulder-straps (G)	2	12	0 13 0
	Leather copper cap pocket (G)	0	1	0 0 8
	1 pair black cloth trousers (G)	1	13½	0 8 6
	1 pair ammunition boots (G)	3	0½	0 8 0
	1 stock and clasp	0	2½	0 1 0
	1 shirt	0	14	0 2 0
	1 pair socks	0	4½	0 1 0
	1 pair braces	0	2	0 0 8
	1 flannel belt	0	3½	0 1 0
	1 pair mitts	0	2½	0 0 8
On knapsack, Necessaries in the knapsack, lb. 11-9½.	1 haversack	0	6½	0 0 10
	1 pair summer trousers	1	2½	0 6 0
	1 pair regimental boots	3	0½	0 7 6
	2 pair socks	0	9	0 1 0
	1 shell jacket	1	6½	0 7 6
	2 shirts	1	12	0 4 0
	2 towels	0	6½	0 1 4
	1 flannel belt	0	3½	0 1 0
	1 holdall complete	1	3	0 3 6
	Sets of brushes	1	0½	0 1 8
On knapsack, Necessaries in the knapsack, lb. 6-9½.	Blacking and cleaning things	0	14½	0 0 6
	Knapsack and straps	4	10½	0 12 6
	Canteen, and cover, and straps	1	3	0 2 4
	Forage cap and number	0	6½	0 2 4
	Greatcoat†	5	0	0 12 6
Total		56	3½	9 12 2

* The ammunition is here charged at 4d. per round, and copper caps at 10s. per 1000—the rate at which the Soldier has to pay for any deficiency.

† Sergeant's coatee, 26s.; trousers, 12s.; forage cap, 3s. 6d.; sash, 1s. 6d.; chaco, 6s.; shell, 20s.

‡ Greatcoats are provided at the expense of Government, and are supplied on requisition to the Secretary-at-War, through the Regimental Agent.

RECAPITULATION.

	Weight.	Price.		
	lb. oz.	£	s.	d.
Arms and accoutrements	16 11½	3	9	3
Ammunition	5 11	1	0	9
Government clothing, marked G.....	10 15½	1	13	8
Regimental necessities on person	22 13½	2	1	2
Knapsack complete, in heavy marching order		1	7	4
Total.....	56 3½	9	12	2

ISSUE OF CLOTHING, ARMS, &c.

1 Coatee and shoulder-straps	}	1st of April each year.
1 pair black cloth trousers		
Ammunition boots { Sergeants each 2 pairs .	}	Every 2 years.
Other ranks each 1 pair		
1 Chaco complete	}	3 years.
1 Greatcoat (on application to Secretary-at-War)		
Sergeants' sashes	}	12 years.
Arms		
Accoutrements	}	6 years.
Swords		
Drums	}	20 years.
Pair of silk colours and cases		
Bayonet and sword scabbards	}	
Leather copper-cap pocket		
Bugles	}	
Armourer's forge and pack-saddle		

When clothing is not issued, a monthly compensation is granted of—

To a Sergeant	5s.
Other ranks	2s. 9d.

No broken periods of a month can be charged for.

ALTERATION OF CLOTHING.

A size-roll, agreeably to form (*Reg. page 154*), must be forwarded yearly from each Corps to its Clothier, to enable him to fit the men as nearly as possible; as, however, alterations are necessary notwithstanding this precaution, *one shilling* may be charged, thus:—

To the Colonel	6 <i>d.</i>
„ Soldier	6 <i>d.</i>

REPAIRS OF ARMS.

Officers in command of companies are chargeable with the repair of all damage done to arms on parade, or on the line of march, when it has been ascertained that such damage was not occasioned by the neglect or carelessness of the Soldier.

The arms are to be “browned” every two years by the Armourer, at a charge of 8*d.* per barrel, to be paid by the Soldier.

The locks must be cleaned once a month by the Armourer; 1*d.* for each is charged to the Captain.

The 10th Article of War states, that “every Captain is charged with the arms, accoutrements, ammunition, clothing, and other warlike stores belonging to his company, for which he is responsible to his Colonel, or Commanding Officer, in case of their being spoiled, lost, or damaged, *not* by unavoidable accident or on actual service.”

AMMUNITION.

When not on service, each man must be provided with *ten* rounds of service ammunition and caps; but on any emergency, or on service, that quantity must be increased to 60 rounds and 75 caps.

Caps are issued in the proportion of 50 to every 40 rounds of ball cartridge, and 11 to every 10 rounds of blank.

The service cartridge is composed of a ball ($14\frac{1}{2}$ to the lb.), and of powder $4\frac{1}{2}$ drachms. Cartridges are packed in parcels of 10 in each, and in barrels of 50 parcels.

PRACTICE AMMUNITION.

30 rounds ball cartridge and $37\frac{1}{2}$ caps,

60 „ blank „ and 70 „

May be expended annually per man; two-thirds in the spring, the rest in the autumn; application for which must be made to the Ordnance Department, at the undermentioned periods:—

Spring allowance, *before* the 1st August in each year.

Autumn „ „ 1st December „

Service ammunition must not be used for practice without sanction, and *vice versa*.

To prevent accidents, blank ammunition must always be made up in “blue” paper.

DAILY PAY OF RANK AND FILE.

	Cavalry.		Infantry.	
	s.	d.	s.	d.
Sergeant-major receives, including 1d. beer money	3	7	3	1
Quartermaster-sergeant „ „	0	0	2	7
Troop sergeant-major „ „	}	3 0	2	5
Colour-sergeant „ „				
Sergeant „ „	2	3	1	11
Corporal „ „	1	$8\frac{1}{2}$	1	5
Drummer „ „	1	8	1	$2\frac{1}{2}$
Private „ „	1	4	1	1
Boys under 15 years	0	10	0	10

MESSING AND WASHING.

The full amount of stoppages to be charged against the Soldier must in no case exceed the following rates, unless at his own request, or by sentence of Court-Martial:—

	Cavalry per week.		Infantry per week.	
	At home.	Abroad.	At home.	Abroad.
	s. d.	s. d.	s. d.	s. d.
For messing and washing, including price of ration }	5 10	4 4½	4 11½	3 6
For necessaries	2 7½	2 7½	1 6	1 6
For articles for cleaning appointments, &c. and other incidental expenses	0 3½	0 3½	0 6½	0 6½
Total per week.....	8 9	7 3½	7 0	5 6½

At home, the price of the daily ration must not exceed 6d. Abroad, it has been reduced to 3½d., as shown.

Should a man be in debt, and the charge for washing and messing be less than the regulated daily rate, the Captain may apply the difference towards the liquidation of such debt.—(*War O. Reg. page 9.*)

PRESENT DAILY RATE OF MESSING AND WASHING OF THE
PROVISIONAL BATTALION PER MAN. (1851.)

Ration under 6d.		s. d.
{	1 lb. bread (contract price 3½d. per 4 lb. loaf)	0 0½
{	¼ lb. meat (contract price 3½d. per lb.)	0 2½
	Breakfast and vegetables	0 2
	Evening meal (bread and tea).....	0 1½
	Washing, at 4d. per week.....	0 0½
		<hr/>
		0 7½

COMPANY'S ACCOUNTS.

CONTINGENT ALLOWANCE.—The Officer in command of a Company not exceeding 50 men, receives an allowance of 1*s.* a day ; and for every additional 25 men, 6*d.* extra, as an indemnification for the repairs of arms and other incidental expenses.

DAY BOOK.—This book must be of a portable size, having a page in it assigned to each man ; all articles, or repairs required, and any extra cash payments, must be entered in it directly they are ordered ; the dates and prices to be affixed when the issue is made, the repairs executed, &c.

THE PAY SHEET must show the amount of daily pay issued to each man ; the Officer present at each day's payment must sign the column he has seen marked off. "As men should receive the residue of their pay (after paying for their living) in daily portions as nearly equal as possible, it is not expected that the amount charged in the Company's Ledger under the head of 'daily payments,' should in all cases exactly balance the account ; or that there should not occasionally be a few pence one way or the other at the end of the month."—(*Horse Guards Circular*, Aug. 1850.)

THE COMPANY'S LEDGER.—1. "Each man is to have a clear leaf of the ledger to himself, with his name and regimental number distinctly written on the top of each page ; and no new account is ever to be opened on the leaf containing the accounts of any man who may have become non-effective ; by this means, when men happen to be 'transferred' from one Company to another, the leaves containing their accounts may be removed, or transferred with them."—(*Ibid.*)

2. "The date of the issue of all articles of necessaries, or extra cash payments, must be stated in the margin of the account; and all entries should be clearly transcribed from the Day Book without contractions, and no two entries should be made on the same line, unless for articles issued on the same day."

3. In order to show at once the expense of the Soldier's living, the cost of the "ration" (which must never exceed 6d.) is to be included in the charge for "messaging," the daily rate of which is to be specified.

4. Every man who can write, however badly, must be required to sign his account in the presence of the Officer paying the Company, who must also affix his signature, as a voucher that he explained the account to the man, and saw him sign it. When men cannot write, the Officer must cause their "marks" to be witnessed by some other person, not the Pay Sergeant, thus:—

his
JAMES X O'GRADY.
mark.

Witness { JOHN MURRAY,
Corporal.

5. A man confined in the guard-room (or if a non-commissioned Officer placed under arrest) must be credited with the full amount of his pay, unless "convicted" by a Court-Martial; when he can only receive "subsistence" at 6d. per day, as if in prison.

6. When a man under sentence of imprisonment is admitted into hospital, the time he remains there counts towards the completion of his punishment; for hospital charges in this case, see "Form of Accounts," No. 1.

7. Men in hospital should always (when practicable) be settled with monthly, and their "balance credit," if any, carried over to the next month's account.

8. When a Soldier is sentenced by Court-Martial to imprisonment and forfeiture of pay, such forfeiture must not commence until after his release; if again imprisoned before he has completed the former sentence of forfeiture, such imprisonment must not reckon toward its accomplishment.

9. A Soldier forfeits both pay and service for imprisonment by sentence of Court-Martial, and pay only when imprisoned by his Commanding Officer for any period not exceeding 7 days.

HOSPITAL STOPPAGES, at the following rate per diem, date from the day *after* a man is taken to hospital, and include the day of discharge:—

	Men.	Boys.
At home	10d.	} 8d.
Abroad	9d.	

Stoppages are not to be charged for the day on which a man reports himself sick, as he must pay for that day's messing and washing.

FURLONGHS should, if possible, date from the 1st day of the month inclusively; the advance made to men availing themselves of this indulgence should not exceed—

To a Sergeant	1s. per diem.
„ other ranks	8d. „

The remainder of their pay (excepting liquor money, which is not allowed while on furlough) will be credited to them on their return. The same rule, as regards advance of pay, also applies to passes, which Commanding Officers may grant between the half-monthly returns. Furloughs can only be granted by application to the Officer commanding the station, &c.

MARCHING MONEY.—For each day's march of not less than 10 miles, a man receives—

In England	3d.
„ Ireland	4d.
„ Scotland	5d.

In England, a further allowance of 10d. a day is granted for a “hot meal.”—(*Cl.* 71.)

When men arrive at their destination, after a long journey by railway or steamer, they may receive, if

In England	A hot meal.
„ Ireland	4d.
„ Scotland	5d.

—(*Ex. Direc. W. O. Reg. page 100, par. 350.*)

LODGING MONEY.—2d. a day is granted to “three” married men, per 100 rank and file, to find their own lodgings, when their corps are stationed in Barracks either at home or abroad.

STATIONARY QUARTERS.— $\frac{1}{2}$ d. a day is allowed for each man not dieted as a Soldier on the march: in Scotland, this is given to the Soldier, and in England, to the innkeeper upon whom the man is billeted.—(*Cl.* 71.)

When men are *quartered* on the inhabitants of Scotland, the latter are allowed 1d. a day per man; those of Ireland, are allowed as follows per week:—

	In Dublin.	In the Country.
For each Sergeant	1s. 1d.	1s.
„ other ranks	6 $\frac{1}{2}$ d.	6d.

The above are always charged under the head of “Increased Rates.”

THE ACQUITTANCE ROLL is a document for the information

of the Commanding Officer ; it must be signed by each man present with his Company at the monthly settlement (whether in debt, credit, or otherwise), as an acknowledgment that he is satisfied with the correctness of his accounts, and that any claims he may have had for clothing, &c., have been duly settled.

The following Forms will show the order in which the several items of a Soldier's account are to be charged and entered in the Company's Ledger, according to the *Horse Guards Circular*, dated August 1850 ; the several cases are arranged so as to provide for most casualties :—

METHOD OF KEEPING THE COMPANY'S LEDGER, According to *Horse Guards Circular*, August 1850.

CASE 1.

Sergeant JOHN SMITH was placed under arrest on the 4th Jan. 1851, and reported himself sick.
5th to 9th, in hospital (both days inclusive).
11th, he was tried by a Regimental Court-Martial, and sentenced to be reduced, and to 14 days' solitary confinement.
25th, received a shell-jacket, 7s. 6d.; and a forage-cap and number, 2s. 4d.
28th, 1 pair of mitts, 8d.

REMARKS.

Sergeants are not generally charged with washing in their accounts, and in some corps their messing is not charged for.
The 11th and 24th days are included in the term of imprisonment.

No. 1047, SERGEANT JOHN SMITH.						Cr.			
Dr.	Sums paid and Articles furnished.	£	s.	d.	Date.	Amount of Pay and Allowances.	£	s.	d.
1851	To 4 days' messing, at 10d.	0	3	4	1851	By 3 days' pay, at 1s. 10d.	0	5	6
Jan. 31	" 7 days' messing, at 7½d. *	0	4	3	Jan. 31	" 7 days' pay, at 1s.	0	7	0
"	" amount of daily payments	0	2	0½	"	" 10 days' liquor money, at 1d. ...	0	0	10
"	" 3 days' arrest, 14 days' solitary confinement, at 6d.	0	8	6	"	" 16 days' in confinement, at 6d. ...	0	8	0
"	" 5 days' prisoner in hospital, at 10d.	0	4	2	"	" 5 days' prisoner in hospital, at 10d. ...	0	4	2
"	" barrack damages, 1d.; sheets, 2d.	0	0	3		Balance Dr.	0	8	1
"	" hair-cutting, 1d.; washing, 3d.	0	0	4		A. B.			
"	" library, 1d.; marking, 1½d.	0	0	2½		Captain.			
25	" shell jacket, 7s. 6d.; forage cap and number, 2s. 4d.	0	9	10					
28	" 1 pair of mitts, 8d.	0	0	8					
	John Smith.	£1	13	7			£1	13	7

* The daily rate of messing depends entirely on the contracts and the station.

CASE 2.

REMARKS.

Corporal JOHN BROPHY has upwards of 14 years' service, and is in the receipt of 2*d.* additional pay.
 10th Jan. 1851, promoted Sergeant.
 12th " a Sergeant's shell-jacket, 20*s.*, as per Day Book.
 13th " a forage-cap and number, 3*s.* 6*d.* "

Additional or good conduct pay, on promotion to Sergeant, merges into the 1*s.* 10*d.* a day.

No. 980, CORPORAL JOHN BROPHY.						Cr.			
Dr.	Sums paid and Articles furnished.	£	s.	d.	Date.	Amount of Pay and Allowances.	£	s.	d.
1851					1851				
Jan. 31	To balance Dr. last month	0	0	10	Jan. 31	By 10 days' pay, at 1 <i>s.</i> 6 <i>d.</i> (addnl. 2 <i>d.</i>)	0	15	0
"	" 10 days' messing, at 7½ <i>d.</i>	0	6	1½	"	" 21 days' pay, at 1 <i>s.</i> 10 <i>d.</i>	1	18	6
"	" 21 days' messing, at 10 <i>d.</i>	0	17	6	"	" 31 days' liquor money, at 1 <i>d.</i> ..	0	2	7
"	" amount of daily payment	0	6	0½					
"	" barrack damages, 2 <i>d.</i> ; sheets, 2 <i>d.</i> ..	0	0	4					
"	" hair-cutting, 1 <i>d.</i> ; washing, 5½ <i>d.</i> ..	0	0	6½					
"	" school, 4 <i>d.</i> ; library, 1 <i>d.</i> ; mark-	0	0	6					
"	ing, 1 <i>d.</i>	0	0	6					
13	" shell jacket, 20 <i>s.</i>	1	0	0		A. B.			
13	" forage cap and number, 3 <i>s.</i> 6 <i>d.</i> ..	0	3	6		Captain.			
	Balance Cr.	0	0	9					
	John Brophy, Sergeant.	£2	16	1			£2	16	1

CASE 3.

				REMARKS.
Private CHARLES DUNCAN enlisted on the 1st Jan. 1840; on the 1st Jan. 1845, he became entitled to 1 <i>d.</i> a day good conduct pay, and to another on the 1st Jan. 1850.				See Good Conduct Pay, at p. 27.
6th Jan. 1851,	admitted into hospital	.	.	Both days inclusive.
8th "	discharged from hospital	.	.	
9th "	received a shirt, 2 <i>s.</i> ; cloth trousers repaired, 8 <i>d.</i>	.	.	Accounted for under the head of "Daily Payments."
10th "	musket browned, 8 <i>d.</i>	.	.	
11th "	promoted Corporal; received a shell-jacket, 7 <i>s.</i> 6 <i>d.</i>	.	.	Loses "hot meal," which otherwise he would have been entitled to.
27th "	sent on escort duty, 4 marches (England)	.	.	
31st "	returned off escort and placed under arrest	.	.	Loses 1 <i>d.</i> good conduct pay in consequence.
3rd Feb. 1851,	tried by Court-Martial, and reduced	.	.	As per Day Book.
4th "	received a new pocket-ledger, 3 <i>d.</i>	.	.	Loses 1 <i>d.</i> good conduct pay in consequence.
8th "	a new nipple to firelock, 8 <i>d.</i>	.	.	
10th "	absented himself without leave.	.	.	Loses 1 <i>d.</i> good conduct pay in consequence.
14th "	returned to his quarters, and placed in confinement.	.	.	
15th "	awarded, by Commanding Officer, 5 days' pay stopped and 7 days' hard labour.	.	.	

No. 1307, PRIVATE CHARLES DUNCAN.					CR.	
DR.	Sums paid and Articles furnished.				Amount of Pay and Allowances.	
Date.	£	s.	d.	Date.	£	s.
1851				1851		
Jan. 31				Jan. 31		
"	To 22 days' messing, at 7½d.	0	13		By balance Cr. last month	0
"	" amount of daily payments	1	8	"	" 10 days' pay at 1s. 2d.	0
"	" 4 days' hospital charges, at 10d.	0	3	"	" 20 days' pay, at 1s. 6d.	1
"	" 1 day under arrest, at 6d.	0	0	"	" 30 days' liquor money, at 1d. ..	0
"	" barrack damages 2½d.; sheets, 2d.	0	0	"	" 1 day in confinement, at 6d.	0
"	" hair-cutting, 1d.; marking, 1d.	0	0	"	" 4 days' marching pay, at 1s. 1d.	0
"	" washing, at 7½d.	0	1		Balance Dr.	0
"	" school, 4d.; library, 1d.	0	0		A. B.	8
10	" musket browned	0	0		Captain.	
9	" 1 shirt, 2s.; cloth trousers re- paired, 8d.	0	2			
11	" shell jacket, 7s. 6d.	0	7			
	Chas. Duncan.	£2	18			6
Feb. 28	To balance Dr. last month	0	8	Feb. 28	By 6 days' pay, at 1s. 1d.	0
"	" 13 days' messing, at 8½d.	0	8	"	" 12 days' pay, at 1s.	0
"	" amount of daily payments	0	2	"	" 18 days' liquor money, at 1d. ..	0
"	" 3 days' arrest, 7 days' prison, at 6d.	0	5	"	" 10 days in confinement, at 6d.	0
"	" 5 days' pay stopped, by Com- manding Officer, at 1s. 1d.	0	5		Balance Dr.	0
"	" hair-cutting, 1d.; washing, 7d.	0	0		A. B.	7
"	" library, 1d.; barrack damages, 1d.	0	0		Captain.	
"	" sheets, 2d.	0	0			
4	" new pocket ledger, 3d.	0	0			
8	" new nipple to firelock, 8d.	0	0			
	Chas. Duncan	£1	12			0½
			0½		£1	12
						0½

CASE 4.

REMARKS.	41 days.
<p>Private WILLIAM HIGGINS received furlough from the 1st Dec. 1850 to the 10th Jan. 1851.</p> <p>10th Jan. 1851, returned off furlough.</p> <p>12th " received 2 shirts, 4s. ; 1 pair boots, 7s. 6d.</p> <p>13th " received a shell-jacket, 7s. 6d.</p> <p>14th " drunk on duty and confined.</p> <p>16th , tried by a Regimental Court-Martial, and sentenced to 42 days' hard labour, and to lose 1d. per diem for 30 days.</p>	<p>The term of imprisonment includes the day on which the president signs the proceedings.</p> <p>The forfeiture commences at the expiration of the term of imprisonment.</p>

No. 997, PRIVATE WILLIAM HIGGINS.									
Date.	Sums paid and Articles furnished.	£	s.	d.	Date.	Amount of Pay and Allowances.	£	s.	d.
1850 Dec. 31	To amount of daily payments " 41 days' advance on furlo., at 8d. his Wm. + Higgins. mark. Witness { John Blake, Sergeant.	0 1	0 7	10 4	1850 Dec. 31	By balance Cr. last month " 41 days' advance on furlo., at 8d. A. B. Captain.	0 1	0 7	10 4
		£1	8	2			£1	8	2
1851 Jan. 31	To 3 days' messing, at 7½d. " amount of daily payments " 2 days' confinement, at 6d. " 16 days' imprisonment, at 6d. ... " barrack damages, ½d.; sheets, 2d. " hair-cutting, 1d.; marking 1d. " washing, 1½d. " 2 shirts, 4s.; 1 pair boots, 7s. 6d. " 1 shell jacket, 7s. 6d. his Wm. + Higgins. mark. Witness { John Murphy, Corporal.	0 0 0 0 0 0 0 0 0 0	1 1 1 8 0 0 0 11 7	10 2 0 0 2½ 2 1½ 6 6	1851 Jan. 31	By 41 days' difference of pay on fur- lough, at 4d. " 3 days' pay, at 1s. " 3 days' liquor money, at 1d. ... " 18 days in confinement, at 6d.... Balance Dr. A. B. Captain.	0 0 0 0 0	13 3 0 9 5	8 0 3 0 7
		£1	11	6			£1	11	6

CASE 5.

Drummer JOHN MOLLOY, being married with leave, is permitted to be out of Mess, and also to find his own lodgings.

10th January 1851, received a new drum-head, 3s. 6d.

No. 1178, DRUMMER JOHN MOLLOY.										CR.
Dr.										
Date.	Sums paid and Articles furnished.	£	s.	d.	Date.	Amount of Pay and Allowances.				
1851					1851					
Jan. 31	To amount of daily payments	1	19	7½	Jan. 31	By 31 days' pay at 1s. 1½d.				6½
"	" hair-cutting, 1d.	0	0	1	"	" 31 days' liquor money, at 1d. ...				7
"	" library, 1d.	0	0	1	"	" 31 days' lodging money, at 3d.				8
10	" a new drum-head, 3s. 6d.	0	0	6						
	<i>John Molloy.</i>					<i>A. B. Captain.</i>				
		£3	9	9½						£3 9 9½

CASE 6.

Private JOHN MURPHY was admitted into hospital on the 6th January 1851.

Died on the 25th January 1851.

REMARKS.
Inclusively.
Receives pay for that day, and is charged hospital stoppages.

No. 1329, PRIVATE JOHN MURPHY.						Cr.									
Dr.	Sums paid and Articles furnished.			£	s.	d.	Amount of Pay and Allowances.			£	s.	d.			
1851 Jan. 31	To 5 days' messing, at 7½d.			0	3	1½	1851 Jan. 31			By 25 days' pay, at 1s.			1	5	0
"	" amount of daily payments			0	2	1	"			" 25 days' liquor money, at 1d. ...			0	2	1
"	" 20 days' hospital stoppages, at 10d.			0	16	8	"			" Sale of necessaries			1	3	0
"	" sheets, 2d. ; washing, 2½d.			0	0	4½				Balance Dr.			0	7	2
"	" funeral expenses			1	15	0									
Died 25th Jan. 1851.										A. B. Captain.					
				£2	17	8				£2	17	3			

NON-EFFECTIVE.

1. When a Soldier dies, his Captain and two other Officers must take an inventory of his effects, which are to be sold by auction within one month after his decease; the amount they realize must be added to his other credits (if any); and after defraying his funeral expenses (which in no case must exceed 1*l.* 15*s.*), and paying all other regimental debts, the residue must be handed over with the non-effective accounts to the Paymaster, for transmission to his next of kin, through the War Office.. When there are not sufficient effects to meet the funeral expenses, they must be defrayed by the Officer Commanding the Company.

The following printed forms are furnished by the War Office, and must be most carefully made out, and duly certified :—

- | | |
|--|-----------------|
| 1st. An inventory of the deceased man's effects | } In duplicate. |
| 2nd. The particulars of the sale thereof . . . | |
| 3rd. A statement of the man's account, showing his debts, credits, and Savings Bank deposits, if any | |

If the deceased has made a will, it must, with his Pocket Ledger, accompany the first set of the above, and a certified copy of it must be kept at the regiment.

2. When a Soldier deserts, a description return must be forwarded to the Secretary-at-War. An inventory of his effects * must be taken by his Captain and two other Officers, and the articles sold by auction within *three months* after his desertion, at the discretion of the Commanding Officer: whatever balance remains, after the payment of his regimental debts, must be handed over with his non-effective accounts to the Paymaster for the public. The same rule (as regards the disposal of effects) applies to men delivered

* The committee on a man's effects should always fix the price at which the knapsack may be re-issued.

up as apprentices (*Cl.* 61.), to deserters who have re-enlisted, and to men convicted of felony by a civil court.

If a man is recovered to the Service before the expiration of the *three* months, his Commanding Officer has authority to restore to him the whole or a part of his effects.

THE POCKET LEDGER.

THE SOLDIER'S POCKET LEDGER contains extracts from the Articles of War, and from the Pension, and Good Conduct Warrants, and such other information necessary for the Soldier; each man, on joining, must be provided with one; and, at each monthly settlement, the balance, if any, of his account as per Company's Ledger, must be distinctly entered, the Captain signing it when it exhibits a credit; the Soldier, a debt; and both signing when the account is "square."

All issues of Government Clothing must be entered and signed for; and all wounds received in action, all promotions, reductions, services, &c. &c., with the name and address of the man's next of kin, must be duly recorded.

When a man has money deposited in the Regimental Savings Bank, a monthly account of it must appear in the Pocket Ledger.

When a man dies, his book is forwarded to his relations, through the War Office.

MUSTER.

MUSTER takes place on the last day of each month, unless that day should be a Sunday, when it is taken on the following day. The Regimental Muster Roll must contain the name of each Officer and Soldier in the regiment, the date of enlistment of each recruit, each man's regimental number, and *generally*, any remark that may tend to make it an accurate record.

MUSTER-ROLL AND PAY-LIST.

THE COMPANY'S MUSTER-ROLL AND PAY-LIST is a document of much importance, and should be most correctly made out. It must contain a Roll of the Company, agreeing in every respect with the Regimental Muster-Roll; and must also show the amount of Pay, Allowances, &c. &c., which each man became entitled to during the past month; together with all Stoppages and Forfeitures: according to the following Form:—

PAY-LIST OF CAPTAIN A. B.'S COMPANY, FOR JANUARY 1851.												
Regimental No.	Rank and names.	No. of days for which pay is charged.	Rate per diem.	Amount.	No. of days' marching allowance.		No. of days subsisted in confinement.	Stoppages.				REMARKS, Explanatory of broken periods, and whether the <i>rate</i> includes good conduct or additional pay, &c. &c.
					Full.	Hot.		On board ship.	Hospital.	Not entitled to beer money.	Forfeited.	
			s. d.	£ s. d.								

A Pay-List is sent every month to the Paymaster, who returns it with any corrections that may be required, and with an abstract of his account with the Company, made out on the back of it.

SAVINGS BANK.

The rate of interest upon deposits is 3*l.* 15*s.* per cent. per annum. No interest is allowed upon any other parts of 1*l.* than 6*s.* 8*d.* or 13*s.* 4*d.*, nor upon any sums that have not remained in deposit for at least one month, to be reckoned from the last monthly muster day. When a sum is withdrawn at any time between muster days, interest will only be allowed up to the last muster day, unless such day be the muster day.

Interest upon all sums in deposit must be added to the principal *quarterly*, and will henceforth bear interest.

When a Soldier wishes to withdraw any sum he has deposited, at least 7 days' notice must be given.

When a man is discharged his deposits may remain at interest for a period not exceeding 6 months; but if desired, the principal may be retained for a longer time, but without interest.

When a Soldier dies, the interest on his deposits ceases on the next muster day; and, together with the principal, it must be added to his other effects.

A deserter forfeits to the public all his savings.

A Captain must keep the Savings Bank Ledger belonging to his Company, and is responsible for the correct entry in it of all deposits and withdrawals, also that the former are duly debited against him, and the latter credited to him by the Paymaster, in his abstract on the back of the monthly pay-list.

MONTHLY RETURNS.

The following Returns are required from a Company at the end of each month :—

1. The Acquittance Roll, showing the debts and credits of the Company, and the number of Bibles and Prayer Books in possession.

2. The Monthly Muster Roll and Pay-list.
 3. The Bread and Meat Account.
 4. A Return of Sums drawn from the Paymaster.
 5. A Return of Sums deposited in, and Sums withdrawn from, the Company's Savings Bank.
 6. A Return of Men who have become entitled to additional pay, explaining, whether for length of Service or Good Conduct.
 7. A Return of Forfeitures.
 8. A Return of Hospital Stoppages.
 9. A Return of Transfers, &c.
 10. A Return of Defaulters.
 11. A Return of Men tried by Court-Martial.
 12. A List of Necessaries supplied.
-

TAKING OVER A COMPANY.

AN OFFICER TAKING OVER THE COMMAND AND PAYMENT OF A COMPANY should, before signing the transfer certificate, attend to the following particulars :—

- 1st. That the arms and accoutrements (in use and in store) are fit for service and correctly marked ; that each man is in possession of the regulated quantity of ammunition and copper caps ; that all claims for clothing or compensation in lieu thereof have been duly settled ; that the great coats are in good repair ; and the men's kits complete, and properly marked.
- 2nd. That each man has been settled with ; and that his pocket ledger has been properly made up and signed.
- 3rd. That receipts are produced, showing that *all* the Company's bills have been paid.
- 4th. That the men have no complaints or claims unsettled.

An Officer is not expected to take a larger debt than 10*l.* with a Company, nor more than 10*s.* with any man handed over, or transferred to him.

REWARDS FOR SERVICE AND GOOD CONDUCT.

ANNUITIES.—2,000*l.* a year is distributed in annuities (not exceeding 20*l.* each) to Sergeants, while serving, or after discharge, for meritorious service ; each recipient is presented with a Silver Medal.

SERVICE PAY.—Twopence per diem extra, after 14 years' Infantry, and 17 years' Cavalry service, applies only to those men who enlisted prior to the 1st September 1836, and who have not availed themselves* of the privileges of the warrant of that date, which are as follows :—

GOOD CONDUCT PAY AND BADGES.—A Corporal, Drummer, or Private having 5 years' service, his name not appearing in the Regimental Defaulters' Book for the last 2 years, becomes entitled to 1*d.* per diem, and to wear a distinguishing badge. After 10 years' service, and being in the receipt of 1*d.* good conduct pay for the *last 2 years*, he becomes entitled to a second badge, and 2*d.* per diem. After 15 years' service, and having been in the uninterrupted receipt of 2*d.* good conduct pay for the *last 2 years*, he becomes entitled to a third badge, and 3*d.* per diem, and so on.

The commission of any offence which shall impose the necessity of recording a Soldier in the Regimental Defaulters' Book will, if he be not already in possession of good conduct pay and badge, render him ineligible for the same for two years from the date of such offence ; and if he be already in possession of the said pay and distinction, it will subject him to the loss thereof for one year ; whilst a second offence recorded within 12 months, will require 2 years of uninterrupted good conduct, in order to obtain a restoration of such reward. A Soldier, with two or more badges, forfeits one, besides 1*d.* of his good conduct pay for one year, for each offence ; and if he should forfeit *all* his

* They are nevertheless entitled to wear distinguishing marks, or badges, whether they do so or not.

badges and good conduct pay, he can only recover the same by subsequently serving, with uninterrupted good conduct, *two* years for each badge and penny.

GRATUITIES.—The sum of 30*l.* for a Regiment of 700 rank and file, and 20*l.* for a Regiment under that establishment, is allowed annually, to be distributed (according to the following scale) to those men who, having completed 21 years' Infantry or 24 years' Cavalry service, and never having been convicted by a Court-Martial, are recommended by their Commanding Officer.

	£	s.	d.
To a Sergeant of 10 years' standing, having the above service	15	0	0
To a Corporal of 7 years' standing, having the above service	10	0	0
To a Private having the above service	5	0	0

Each man receiving the gratuity is presented with a silver medal.

PENSIONS.*

Soldiers enlisted prior to the 1st March 1833, receive pensions according to the warrant, dated November 1829; those who enlisted subsequent to that date, receive pensions as follows, per diem for life :—

If discharged for wounds, &c., received in action,

	s.	d.		s.	d.
A Sergeant may receive from	1	3	to	3	0
A Corporal ,,	1	0	,,	2	4
A Private ,,	0	8	,,	2	0

In extreme cases of suffering, or for gallant conduct in the field, 6*d.* more may be added as Her Majesty's royal bounty.

* See War Office Regulations, p. 211 and following, or extract therefrom in the Soldier's Pocket Ledger.

If totally blind, from unavoidable causes other than wounds,

	s.	d.		s.	d.
A Sergeant may receive from	1	3	to	2	0
A Corporal "	1	0	"	1	3
A Private "	0	9	"	1	0

After 14 years' Infantry, or 17 years' Cavalry service, and being totally blind, with constitution impaired by foreign service, the daily rate is increased,

For a Non-Commissioned Officer 4d.

For a Private 3d.

If men, before having completed 21 years' Infantry or 24 years' Cavalry service, be discharged for *disability* contracted in the service, "*temporary pensions*" are granted of 6d. per diem, for periods varying from 1 month to 5 years.*

Before Sergeants or Corporals become entitled to pensions, as such, they must have served 5 years as Sergeants or as Corporals, holding at the time of discharge the rank for which they claim pension.

The pensions of non-commissioned Officers, like those of Privates, are computed according to their service after 18 years of age. The former receive the following addition for *each year's* service as non-commissioned Officers.

	d.		s.	d.
Sergeant-Major.....	2½	} Total pension not to exceed	2	6
Quartermaster-Sergeant	2		2	3
Colour-Sergeants and Sergeants	1		2	0
Corporals	0½		1	6
Privates .....	..		1	3

Provided always that the non-commissioned Officer shall have 21 years' Infantry or 24 years' Cavalry service, and shall have been discharged as a non-commissioned Officer, having served as such without interruption for the *three years* immediately preceding his discharge.

* Soldiers are permitted to purchase their discharge under certain conditions, and according to the scale laid down at *Regulations*, p. 190.

DISCIPLINE.

The most important duty of an Officer commanding a Company, or any other body of men, is the maintenance of discipline—instructions for which, and for everything connected with the “interior economy” of a Regiment, are most explicitly laid down in the Queen’s Regulations for the Army, commencing at page 115.

The following is a list of summary punishments, Commanding Officers of Regiments, and others “duly authorized,” have power to award:—

Nature.	Extent.	Remarks.
Black-hole.	48 hours.	May, in aggravated cases, precede Confinement to Barracks or Extra Drills, &c. ; but the whole punishment must not exceed 1 month.—(Reg. 121.)
Confinement to Barracks.	1 month.	
Pack Drill.	14 days, with Confinement to Barracks.	Taking all duties, Parades, Defaulters’ Drills, and Fatigues.
Defaulters’ room.	7 days.	
Drill without Packs.	1 month.	Attending Defaulters’ Roll-call.
Imprisonment solitary or otherwise, with Forfeiture of Pay.	Any period not exceeding 168 hours, in addition to any other minor punishment.	Taking all duties, Defaulters’ Drill, &c.
Pay stopped.	Any period not exceeding 5 days, in addition to any other punishment.	With or without Confinement to Barracks. When it is necessary to award more than 6 days, it is better to give Pack Drill in a less proportion.
Extra guards.	.....	For absence without leave, or any other offence, which the Commanding Officer of a Regiment may not think necessary to bring before a Court-Martial.
Defaulters’ drill.	.....	For absence without leave not exceeding 5 days. When pay is stopped, it must be for the entire period of absence, including the day of absenting and the day of return.
		Are never to be awarded except for offences or irregularities on, or when parading for, duty.
		May be combined with Confinement to Barracks, to shorten the period of punishment.

Drill should never exceed *one hour* at a time, *four times* a day.

A Soldier must not be kept longer than 48 hours in confinement without having his case investigated: under peculiar circumstances, however, that period may be extended to eight days; if, in the mean time, he be not summarily dealt with, he must be released, unless committed for trial.—(*Art. 19.*)

THE REGIMENTAL DEFAULTERS' BOOK must be kept by the Adjutant, who is held responsible for the correct entry in it of all crimes for which any of the following punishments have been awarded:—

Nature.	Authority.
7 days' Drill without packs, and upwards ..	Regulations, page 308.
8 ,, Confinement to Barracks, and up-wards	Good Conduct Warrant.
Black-hole	} For any period whatever }
Defaulters' Room	
Pack Drill	
Imprisonment	
Stoppage of Pay	
All crimes tried by Court-Martial.	

THE COMPANY'S DEFAULTERS' BOOK must be kept by the Captain; and, besides containing all the crimes entered in the Regimental Defaulters' Book, it must show all those for which minor punishments have been given.

All crimes of Drunkenness must be entered with red ink.

THE ARTICLES OF WAR must be read to the men every three months.

COURTS-MARTIAL.

(*Mutiny Act, cl. 6, &c. ; Regulations 225, &c.*)

1. There are three degrees of Courts-Martial, viz. :—

- 1st. The General ;
- 2nd. The Garrison or District ;
- 3rd. The Regimental or Detachment ;

for the constitution and powers of each of which see the Table referring to this subject.

2. The proceedings of all Courts-Martial must be conducted in the following order :—

Order.	Remarks.
1st. The Heading.....	Comprising the order for the assembly and the detail of the Court. — Mutiny Act, cl. 14. Reg. 226; Art. of War, 138; Mutiny Act, cl. 12. Art. 128; Reg. 227, p. 10. Reg. 227, p. 12. Reg. 227, p. 13. Ibid.; Mutiny Act, cl. 16. Reg. 228, pp. 20, 21, &c.
2nd. The Swearing-in of the Court	
3rd. The Charge or Charges	
4th. The Plea	
5th. The Prosecution.	
6th. The Defence.	
7th. The Finding	
8th. Character and former convictions	
9th. The Sentence	

3. When several prisoners are to be tried by the same Court upon separate charges, the President and members must be re-sworn at the commencement of each case.

4. In General, Garrison, or District Courts-Martial, the members take precedence according to their army rank and date of commissions : in Regimental Courts they rank Regimentally.

5. When a Prisoner is brought to a Court-Martial, his Commanding Officer must on no account be detailed either as President or member of it.

6. No man can be tried *twice* for the same offence; and no Court can be "revised" more than once, nor is it legal to take additional evidence on such revision.—(*Cl. 13.*)

7. In taking the votes of the Court, the President must begin with the junior member.

8. When a man is committed for trial, he must be warned that his former convictions will be brought in evidence against him; and due notice must be given to him of the day fixed for his trial.—(*Art. 129.*)

9. A Prisoner, on the morning of his trial, must be examined by a medical Officer, who is required to give a certificate for the information of the Court, stating whether he considers him able to undergo corporal punishment, or imprisonment, solitary or otherwise; this certificate must be attached to the proceedings of the Court.

10. A Prisoner should always be recommended to plead "Not Guilty."

11. When a Court finds a non-commissioned Officer "guilty," he must be reduced to the ranks before sentenced to further punishment.—(*Art. 127.*)

SKETCH OF THE PROCEEDINGS OF A GARRISON COURT-MARTIAL.

Proceedings of a Garrison Court-Martial, held at —, on the — 18—, by order of —, commanding the Garrison, bearing date the — 18—.

PRESIDENT.

Lieut.-Colonel, Major, or Captain.—(See *Table*.)

Captain —, — Regt.	| Members. |	Captain —, — Regt.
Lieut. —, — „		Lieut. —, — „
Ensign —, — „		Ensign —, — „

No. —, Private —, of the — Regt., is brought a prisoner before the Court.

The order for the assembly of the Court having been produced and read, as also the names of the Officers forming the Court, the following question is put by the President to the Prisoner.

Question.—Private —, have you any objection to any of the Officers present sitting upon your Court-Martial?

Answer.—

The President and members being duly sworn, the Prisoner, No. —, Private —, of the — Regt., is arraigned upon the following charges:—

1st. For having, &c.

2nd. For, &c.

Question by the Court.—Private —, are you guilty or not guilty of the crimes laid to your charge?

Answer.—

The Prosecution here commences.

1st witness, —, of the — Regt., being duly sworn, and the charges read to him, states,—I am, &c. &c.

The Prisoner declines cross-examining this witness.

Question by the Court.—

Answer.—

2nd witness, —, of the — Regt., being duly sworn, and the charges read to him, states,—I am, &c. &c.

Cross-examined by the Prisoner.

Question.—

Answer.—

Question by the Prosecutor.—

Answer.—

Question by the Court.—

Answer.—

3rd witness (as above).

The Prosecution here closes, and the Prisoner is put on his defence.

It being *four* o'clock, the Court is adjourned until *ten* o'clock to-morrow.*

The Court having met pursuant to adjournment, and *the same members* being present as yesterday, proceeds with the Prisoner's defence.

DEFENCE.

The Prisoner, —, being placed upon his defence, states —, and calls the following witnesses :—

1st witness for defence, —, of the — Regt., being duly sworn, and the charges read to him, states,—I, &c.

Cross-examined by Prosecutor.

Question.—

Answer.—

Question by the Court.—

Answer.—

2nd witness, —, of the — Regt., being duly sworn, and the charges read to him, is called upon by the Prisoner to depose as to his former character and conduct, and states as follows :—

* This is to be inserted whenever, from the lateness of the hour, it is necessary to adjourn the Court.

The Prisoner having closed his defence, the Court is cleared for the purpose of deliberating upon the whole of the proceedings.

FINDING (*in case of acquittal*).

The Court having maturely weighed and considered the evidence in support of the prosecution, together with what the Prisoner has urged in his defence, is of opinion that he, the Prisoner, Private —, of the — Regt., is "Not Guilty" of the charges preferred against him, and it therefore acquits him of the same.

Approved and confirmed,
(or otherwise,)

Signed by the President,
dated at —, 18—.

Signed by the Officer convening
the Court,

Dated

FINDING (*in case of conviction*).

The Court having maturely weighed and considered the evidence in support of the prosecution, together with what the Prisoner has urged in his defence, is of opinion that,

With regard to the 1st charge, he, the Prisoner, No. —, Private —, of the — Regt., is "Guilty."

With regard to the 2nd charge, he, the Prisoner, No. —, Private —, of the — Regt., is "Guilty."

The Court being re-opened, the Prisoner is again brought before it.

FORMER CONVICTIONS AND GENERAL CHARACTER.

Lieut. and Adjutant —, of the — Regt., (*or other competent person*) being duly sworn, and the charges read to him, is questioned by the Court.

Question by the Court (in cases of desertion).—Did the Prisoner surrender himself, or was he apprehended?

Question.—Has the Prisoner been warned that his former convictions would be brought in evidence against him?

Answer.—Yes. (*If there be not any, it must be here stated.*)

Question.—What record have you to produce in proof of former convictions against the Prisoner?

Answer.—On reference to the Regimental Court-Martial Book (*or other authenticated document*) now laid before the Court, it appears that the Prisoner was tried by a — Court-Martial at —, on the —, for —, of which he was convicted and sentenced to —, of which — was inflicted.

Also by a — Court-Martial at —, on the —, &c. (*as above.*)

Question by the Court.—State what you know of the Prisoner's general character?

Answer.—

Question by the Court.—How long has he been in the Service, and what is his age?

Answer.—

The Court is again cleared.

SENTENCE.

The Court having found the Prisoner "Guilty" of both the charges preferred against him, which being in breach of the Articles of War, and taking into consideration his former convictions (*or the absence thereof*), and general good (*or bad, or indifferent*) character, does now sentence him, the Prisoner, No. —, Private —, of the — Regt., to undergo —, at such place* as the Officer approving these proceedings may be pleased to direct.

Approved, &c.
(as shown above.)

Signed by the President,
dated at —, this —, 18

* The term of a Sentence of Imprisonment is reckoned as commencing on the day on which the proceedings of the Court are signed by the President; and, in cases where the Court is revised, it dates from the signing of the original proceedings. When corporal punishment is awarded, the words "*and time*" should be here inserted.

IN CASES WHERE THE COURT IS RE-ASSEMBLED IN ORDER TO REVISE ITS FORMER FINDING OR SENTENCE:—

Dated at —, this —, 18—.

The Court having re-assembled according to order, and having attentively weighed and re-considered the whole of the evidence adduced, both on the part of the prosecution and defence, as well as the observations of the Revising Officer, is of opinion that he, the Prisoner, No. —, Private —, of the — Regt., is “Not Guilty” of the first charge, and does therefore acquit him of the same; with regard to the second charge, the Court is of opinion that the Prisoner, No. —, Private —, of the — Regt., is “Guilty.”

The Court does therefore now sentence the Prisoner, No. —, Private —, of the — Regt. to —

(Signature and date as before.)

OR, The Court having, &c. &c., is still of opinion that the Prisoner, No. —, Private —, of the — Regt., is “Guilty” of both charges preferred against him, and does therefore most respectfully adhere to its former sentence.

Signature of President, and date.

In trials for habitual drunkenness, the evidence required to prove the previous acts of drunkenness, must be given by some competent person on the authority of the Regimental Defaulter's Book, or a certified extract therefrom.

N.B.—When the Court-Martial has been confirmed, the proceedings must be entered in the Regimental Court-Martial Book, and then returned to the President, who encloses them to the Judge-Advocate-General, London.—
(*Mutiny Act, Cl. 17.*)

MISCELLANEOUS.

BARRACKS.

The cubical space allowed for each man is—

In Barracks, from 450 to 500 cubic feet.

In Hospital, „ 600 „ 700 „

PERIODS OF ISSUE OF BARRACK FURNITURE—PRICE, &c.

Description of Article.	Price.	When issued.	No. for each man.	Re- marks.
	£ s. d.			
Paillasses	0 3 3	Every 6 months	1	General Order dated 30th May 1840.
Bolster-cases	0 0 8	„ 4 „	1	
Blankets	0 6 2	„ 12 „	2	
Rugs	0 4 4	„ 12 „	1	
Sheets	0 2 0	„ 1 „	2	
Leather paillasse strap ..	0 0 10	..	1	
Standing iron bedsteads	1 0 0	..	} 1	
Folding ditto	1 6 0	..		
Straw	„ 2 „	24 lbs.	

WEEKLY ALLOWANCE OF COALS, CANDLES, AND WOOD, FOR ONE ROOM.

Dates.	Coals.		Candles.	Wood.	Remarks.
	In-land.	Sea.			
From 1st May to 31st Oct.	lbs. 175	lbs. 140	lb. ½	lbs. 3	Every 12 rank and file are entitled to allowance for one room; a Field Officer to two rooms. Any other Officer one room; but if stationed singly in Barracks, he may receive 150 lbs. Inland, or 120 lbs. Sea Coal for cooking.
„ 1st Nov. to 30th Apr.	325	260	1½	3	
<i>G. O. Aug. 1849.</i>					

DUTIES OF AN OFFICER ON DETACHMENT.

An Officer commanding a Detachment must in every respect conform to the Standing Orders of his Regiment, as regards parades, interior economy, discipline, &c. &c.—(*Regulations*, 115, &c.)

When the Paymaster cannot attend, the Officer commanding the Detachment must take the muster of his men on the last day of the month; and, after signing the usual declarations at the foot of the Pay-list, certifying that the muster was taken in his presence, and that the charges are correct, he must forward it without delay to Head-quarters.

On arriving at his station, the Officer must cause the credit of his Detachment to be cried down.—(*Art. of War*, 7.)

Most of the instructions laid down in the Queen's Regulations, at page 271 and following, are applicable to Officers on Detachment.

All the necessary documents and information, together with the money required for the use of the Detachment, will be supplied by the Paymaster.

DUTIES OF OFFICERS ON BOARD SHIP.

For everything connected with this subject, see Regulations, page 337 and following. For the Embarkation and Disembarkation of Troops, see Regulations, page 325, &c.

HOW TO PUT A BATTALION THROUGH THE MANUAL AND PLATOON EXERCISE.

The Battalion having been handed over (with its ranks closed, arms ordered, bayonets fixed, and standing at ease), to the Officer called upon to put it through the Manual and Platoon Exercise, he must give the following words of command :—

Battalion Attention. 1.*
Shoulder, 1, arms. 1.
Rear rank take open order,
 (*allow time for covering*).
March.
Officers take post of exercise
 in the rear.
Quick march.
Halt—Front.
Order, arms. 3.
Unfix, 1, bayonets. 5. (*allow
 time*)
Shoulder, 1, arms. 1.
Secure, arms. 3.
Shoulder, arms. 3.
Order, arms. 3.
Fix, 1, bayonets. 3.
Shoulder, 1, arms. 1.
Present, arms. 3.
Shoulder, arms. 2.
Port, arms. 1.
Charge, bayonets. 1.
Shoulder, arms. 2.
Advance, arms. 4.
Order, arms. 3.
Advance, 1, arms. 2.
Shoulder, arms. 3.
Support, arms. 3.

Stand at ease. 1.
Attention. 1.
Carry, arms. 3.
Slope, arms. 1.
Stand at ease. 1.
Attention. 1.
Carry, arms. 2.
Rear rank take close order,
March. 1.

Platoon Exercise.

Load. 3.
Handle, cartridge. 4.
Draw, ramrods. 2.
Ram down cartridge. 4.
Return, ramrods. 4.
'Bout. 1.
Prime. 5.
Ready. 1.
Present. 1. (*allow time*)
Load (*in quick time and
 when the men have completed
 their priming*).
Shoulder, arms. 2.
Order, arms. 3.
Stand at ease. 1.

* The figures mark the number of motions in each manœuvre, and when performed.

RANGE OF MUSKETS.

Ranges in yards.	Elevation.									Remarks.
	P.B.	$\frac{1}{2}^{\circ}$	1°	$1\frac{1}{2}^{\circ}$	2°	3°	$3\frac{1}{2}^{\circ}$	4°	5°	
Greatest	218	300	393	533	583	632	686	665	797	Service charge $4\frac{1}{2}$ drachms. Ball $14\frac{1}{2}$ to lb. Stand adjusted after each ex- plosion.
Least ..	116	126	186	261	258	422	408	525	488	
Average	151	206	241	312	397	510	557	599	645	

RULES FOR FINDING THE NUMBER OF PACES RE- QUIRED FOR A GIVEN NUMBER OF FILES.

Multiply the number of files by 7, and divide by 10, for paces. Multiply the figure cut off by 3, for inches.

EXAMPLE.

30 file.	28 file.
7	7
<hr/>	<hr/>
21,0 <i>Ans.</i> 21 paces.	19,6
	3
	<hr/>
	18 <i>Ans.</i> 19 paces; 18 inches.

Or, take $\frac{2}{3}$ of the number of files, and add an inch for each file.

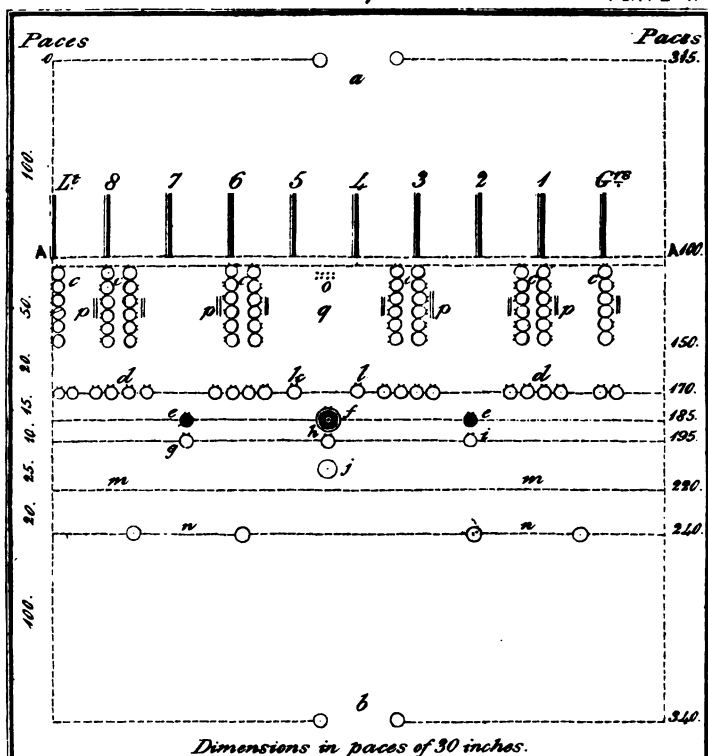
DEGREES AND RATE OF MARCHING.

Slow time	.....	75 paces of 30 inches each per minute.
Quick	„	108 „ „ „
Double	„	150 „ 36 „
Back step	.....	30 inches.
Side	„	10 „

Camp of a Reg^t of the Line

For 10 Companies of 90 Rank & File.
at 21 inches per File.

PLATE I.



AA., Magistral Line.

a. Quarter Guard.

b. Rear Guard.

c. Men's tents.

d. Officers' tents.

e. Field Officers.

f. Com^d Officers' tent.

g. Pay-Master.

h. Surgeon.

i. Quarter-Master.

j. Mess tent.

k. Orderly Officer.

l. Adjutant's tent.

m. Officers' horses.

n. Kitchens.

o. Drums.

p. Arms piled.

q. Parade.

CASTRAMETATION.

The situation selected for a Camp should be healthy, not liable to be flooded, well provided with water, and should have a good supply of wood and forage near it.

On service a Camp should be rendered capable of defence, its flanks should be well protected, and, if possible, defended by a village or river.

The Camp of a Regiment should occupy the same space in front as the Corps would when wheeled into line.

There should be ample space left in front of the Camp for manœuvring.

MODE OF TELLING OFF A REGIMENT FOR ENCAMPMENT.

The Regiment in line is formed into open column right in front; then,

Grenadiers and Light Company stand fast.

No. 2 Company closes on No. 1.

No. 4 " " No. 3.

No. 5 " " No. 6.

No. 7 " " No. 8.

Nos. 5 and 7 Right about Face.

Nos. 2, 4, 6, 8, and Light Companies, Countermarch.

The men of each Company are told off, fifteen to a tent.

The tents should not have more space between them than is necessary to adjust the ropes, and their openings should face as the Company stands.

For the distances between the different rows of tents, see *Plate*.

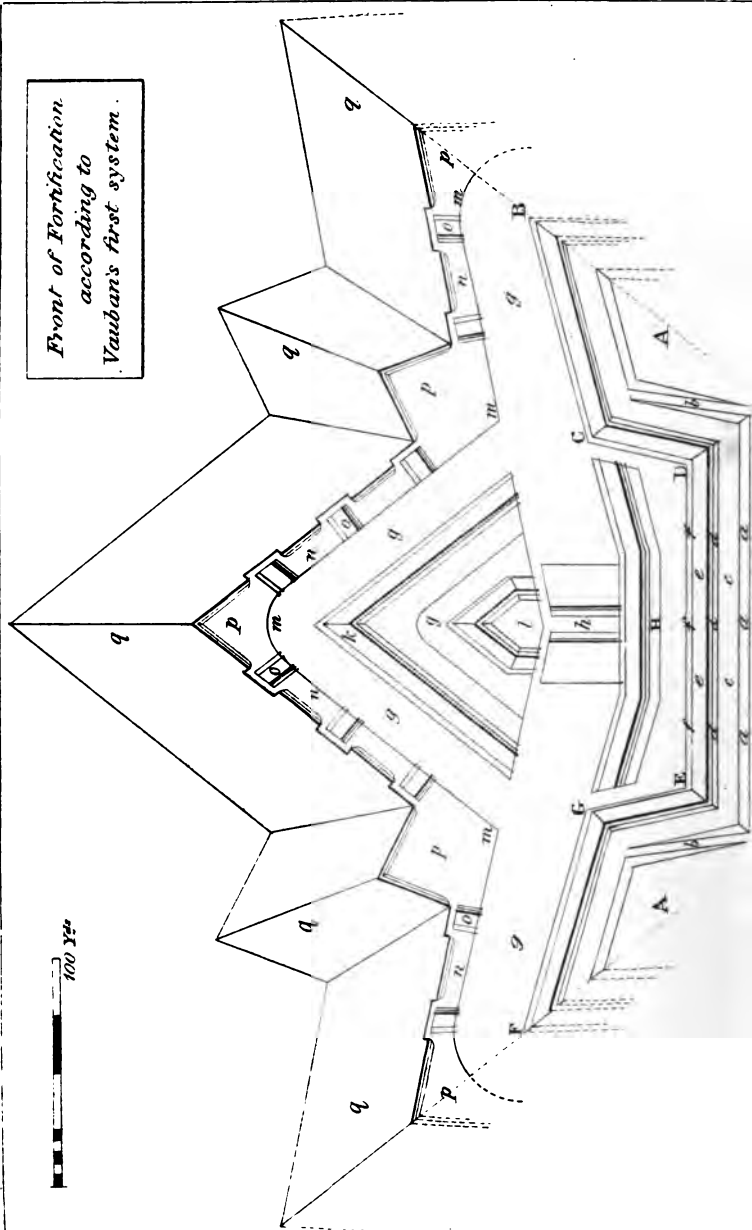
The greatest precautions are necessary against the occur-

rence of fire ; the kitchens should be as few as possible, and should have a ditch round each of them, and the ground in their immediate vicinity thoroughly cleared.

SIZE OF TENTS.

Field Officers and Captains	35 feet by 28.
Subalterns	31 feet by 24.
Bell tent for fifteen men	17 feet diameter.





FORTIFICATION.

(See Plate.)

A	The Bastion (<i>its half</i>).
B C	The Face of the Bastion.
C D	The Flank of the Bastion.
D E	The Curtain.
B	The Salient or Flanked Angle of Bastion.
C	The Shoulder Angle.
D	The Curtain Angle.
B F	One side of the Polygon of Fortification.
B C E, F G D	The Lines of Defence.
G E B, C D F	The Angles of Defence.
H	The Tenaille.
a a a	The Interior Slope of Rampart.
b b	The Ramp.
c c	The Terreplein of the Rampart.
d d d	Banquette and Slope.
e e	Parapet and its interior Slope.
f f f	Exterior slope of Parapet and Escarp.
g g g	The Ditch.
h	Caponnière.
k	The Ravelin.
l	Redoubt in Ravelin.
m m	The Counterscarp.
n n	The Covered-way.
o o o	Traverses in Covered-way.
p p	Places of Arms.
q q q	Glacis.

DEFINITIONS.

1. THE POLYGON OF FORTIFICATION is the Polygon, either regular or irregular, which is supposed to enclose the ground to be fortified.

2. A FRONT OF FORTIFICATION is all the works con-

structed upon one of the sides of the polygon—as the polygon is regular, or irregular, so is the fortification termed.

3. **THE TRACING** is the outline and direction given to the defences, showing how the works are to be laid out.

4. **THE ENCEINTE**, or body of a place, includes all the works constructed within the polygon.

5. **RELIEF** applies to the several heights of works, but more particularly to the measurement from the bottom of a ditch to the crest of the parapet.

6. **THE PLANE OF SITE** is the general level of the ground of a work.

7. **THE PLANE OF DEFILEMENT** is a plane parallel to the above, supposed to pass through the crest of a work.

8. A **SECTION** is the cut made by a plane passing through a work in any direction.

9. A **PROFILE** is when the cut is vertical and perpendicular.

10. A **GROUND-PLAN** is when the cut is horizontal at the base of the work.

11. **THE DEBLAI** is the mass of earth taken from the ditch.

12. **THE REMBLAI** is the earth required to form the works.

13. **COMMAND** is the superior height of one work, or hill, or level, above another.

14. **ENFILADE** means, when the face of a work is exposed to the raking fire of the enemy.

15. **DEFILADE** is the direction given to the faces of a work, or to lines of approach, to avoid enfilade; to defilade a field work, is so to arrange the heights of the different parts, that the enemy may not be able to see into it.

16. A **RAMPART** is formed with the deblai thrown inwards, and consists of an interior slope, a terreplein, a banquette, a parapet, and exterior slope.

17. A **RAMP** is a road cut in the interior slope of the rampart, 20 yards long by 4 yards wide; in bastions, the ramp is 34 yards by 6 yards.

18. **THE INTERIOR SLOPE** is the inclination given to the inner face of the rampart; its base should be equal to its height.

19. **THE TERREPLEIN** is the level portion of the rampart which remains after the formation of the parapet and banquette.

20. **THE PARAPET** is a shot-proof shelter, formed of earth or masonry, on the outer edge of the rampart; its height is usually from $7\frac{1}{2}$ to 8 feet above the terreplein, and 18 feet thick (to resist field guns). Between the embrasures banquettes are constructed to within 4 feet 3 inches of the crest of the parapet, to enable the men to fire over it, and they should be from $4\frac{1}{2}$ to 5 feet wide; the slope of the banquette should be very gradual.

21. **THE INTERIOR SLOPE** of the parapet has a base not exceeding $\frac{1}{4}$ of its height.

22. **THE SUPERIOR SLOPE** of the parapet should have an inclination of 2 inches per foot; a line drawn from it should cut the crest of the counterscarp.

23. **THE EXTERIOR SLOPE** of the parapet should have a base equal to its height; when the soil is bad, the parapet is constructed about 18 inches from the outer edge of the rampart, the space thus left is called the **Berm** (See *Plate 2, Fig. 2*). In Vauban's 3rd System, the berm forms a path round the fort, and is called *Chemin-de-Rondes*. In some works, the berm is rounded off; in others, it is slanted.

24. **THE DITCH** surrounds the whole extent of the works ; the side nearest the place is called the **ESCARP**, and the other the **COUNTERSCARP**.

25. A **BASTION** is a work composed of two faces and two flanks,—where the two faces meet is the flanked angle of the bastion ; where the faces and flanks meet are the shoulder angles ; and where the flanks and curtains meet are the curtain angles.

26. **THE LINES OF DEFENCE** are lines drawn along the faces of each bastion to their opposite curtain angles.

27. **THE ANGLE OF DEFENCE*** is that formed by the meeting of a line of defence and a flank.

28. A **FLANK** is that part of a work which defends another.

29. A **SALIENT ANGLE** is that which points towards the country.

30. A **RE-ENTERING ANGLE** is one which points inwards.

31. A **CAPITAL** is an imaginary line bisecting an angular work.

32. **THE CURTAIN** is the line of rampart between, and connecting the flanks of two bastions.

33. **THE GORGE** is the space between the extremities of two flanks.

34. There are several sorts of **BASTIONS**, viz.,—The Demi, the Detached, the Tower, the Flat, the Full, and the Empty.

35. A **CITADEL** is a small fort within the works of a place, or joining them, commanding the town and country ; it affords a refuge for the garrison, and serves as a check upon the inhabitants.

36. A **CAVALIER** is constructed in a full bastion to obtain

* In Vauban's 1st system this is 85°, in the modern system 90°.

the command over some neighbouring height ; it also affords great protection against enfilade.

37. A **TENAILLE** is a low work in the main ditch constructed in front of the curtain ; it is reveted with masonry all round.

38. A **RAVELIN**, or **DEMI-LUNE** is a work placed beyond the main ditch opposite the curtain ; it has two faces, and is separated from the covered-way by a ditch connected with the main ditch.

39. A **CAPONNIÈRE** is a passage across a ditch, covered on each side by a parapet, the superior slope of which terminates in a small glacis.

40. A **CUNETTE** is a drain in the middle of a dry ditch.

41. A **BATARDEAU** is a strong wall of masonry built across a ditch, to separate the part containing water from that which is intended to be kept dry.

42. **THE COVERED-WAY** is about 30 feet wide, measured from the counterscarp, and has a parapet about 8 feet high provided with a banquette.

43. **PLACES-OF-ARMS** are spaces formed at the salient and re-entering angles of the covered-way ; they are intended as flanks to it, and for the assembling of troops for its defence.

44. **TRAVERSES** are short parapets erected across the covered-way and on the faces of works to afford protection from enfilade.

45. **THE GLACIS** is the gentle inclination given to the superior slope of the parapet of the covered-way.

46. **OUT-WORKS** are those which are beyond the enceinte.

47. **LUNETTES**, **TENAILLONS**, and **FLECHES** are two-faced

R

works ; the former are constructed on each side of ravelins, the latter along the foot of the glacis at the places-of-arms.

48. A **HORN-WORK** is composed of two half bastions and a curtain, and has two long sides, or wings, directed upon the faces of the bastions or ravelins which defend them.

49. A **REDOUBT** is a field fort, and may be either square, circular, or polygonal ; a redoubt is sometimes constructed in a ravelin.

50. A **REDAN** is formed of two lengths of parapet, making an angle of at least 60° .

51. **LINES** are formed for the attack of places and the intrenchment of troops ; they are composed of redans, &c., flanking each other, and connected by curtains not exceeding 120 yards in length.

52. **PARALLELS** are trenches used at sieges to connect the several approaches.

53. **ZIG-ZAGS** are trenches having parapets and berms, but no banquettes ; they are used as covered communications from one parallel to another.

54. AN **ÉPAULEMENT** is an elevation of earth to protect troops from a flanking fire.

55. **TÊTES-DE-PONT** are redans, &c., constructed at the head of a bridge to defend it.

56. A **REVTMENT** is the wall of masonry used in permanent fortification to support the sides of the ditches ; in order to give it greater strength, buttresses are built in the bank at about 18 feet apart ; these are called Counter-forts.*

57. THE **COPING-STONE**, or **CORDON**, is a flat stone placed on the top of revetments to protect them from the weather.

* Revetments are traced in red, as are also brick buildings, &c.

EMBRASURES, &c.

1. **EMBRASURES** are openings cut in the parapet to fire through, 18 feet apart; their exterior width measured on the sole, at 12 feet from the sill, is seven feet.

2. **THE NECK OF THE EMBRASURE** is the narrow or inward part; measured on the sill, it is 2 feet wide.

3. **THE SOLE** is the bottom, or space between the cheeks or sides, which are sloped at the neck $\frac{1}{2}$, and at the mouth of the embrasure $\frac{1}{4}$ their height.

4. **THE SILL** is the front of the sole, 3 feet high.

5. **THE GENOUILLÈRE** is the portion of the parapet directly beneath the embrasure.

6. **THE MERLON** is the portion of the parapet between two embrasures.

7. **LOOP-HOLES** are oblong holes cut through timber, or masonry, for the fire of musketry.

8. **GABIONS** are cylindrical baskets open at both ends; they are used torevet, or support steep interior slopes of batteries.

9. A **SAP-ROLLER** is formed of two gabions,—one 4 feet in diameter, the other 2 feet 8 inches, placed inside each other; and the space between them stuffed with pickets of hard wood, to render them musket-proof.

10. **HURDLES** are used to retain earth at a steep slope, and also to form a firm footing in the Trenches in wet weather.

11. **FASCINES** are bundles of strong brushwood about 18 feet long, and bound tightly together to about 9 inches in diameter to render them musket-proof.

12. **SAND BAGS** are made of coarse canvass, large enough to contain a bushel of earth; they are used for reveting the interior slopes of temporary field works.

13. **SODS OF GRASS** should be cut, when practicable, 18 inches by 12, and 6 inches thick : sods are much used in the construction of parapets.

OBSTACLES.

1. **CHEVAUX-DE-FRISE** are composed of staves, shod with iron spikes, inserted cross-ways into strong bars of timber about 12 feet long ; they are sometimes made entirely of iron.

2. **PALISADES** are strong triangular stakes 9 feet long, fixed 3 feet in the ground, about 4 inches asunder ; they are joined together on the inner, or flat side, by bars of timber called "lintels."

3. **FRAISES** are a lighter kind of palisade, and are usually placed horizontally in the exterior slopes of ramparts.

4. **ABATTIS** are formed of trees felled and their branches pointed, the trunks being turned inwards.

5. **TROUS-DE-LOUP** are conical holes dug in the ground, about 6 feet deep, having a spiked picket fixed in the centre, with its point level with the surface.

6. **STOCKADES** are strong walls of timber or palisades touching each other, and loop-holed.

7. **FARMERS' HARROWS** are often found most useful.

8. **CROWS'-FEET** are pieces of iron having four points ; when scattered on the ground, one of the points of each sticks up ; they are used to obstruct the advance of troops, more particularly Cavalry.

9. **FOUGASSES** are small mines formed at a depth of about 12 feet ; they are placed at about 12 yards in front of the

ditch, and fired, by means of a train called Saucisson, from the interior of a work.

10. INUNDATIONS are formed by throwing up a dyke across the course of a river or stream.

HOW TO PROJECT A FRONT OF FORTIFICATION ACCORDING TO VAUBAN'S FIRST SYSTEM.

1. Form the polygon of fortification as may be required, making each side, or front, equal to 360 yards. All the measurements for the construction of works are taken from the revetment, which is built first, its cordon forming the "magistral" or guiding line.

2. Bisect each front by the right radius, or line drawn from the centre of the polygon, which prolong.

3. From the point of intersection of the right radius and the front, lay off on the former, and towards the centre, a perpendicular equal to $\frac{1}{4}$ the length of the front, if the figure be a square; $\frac{1}{3}$ if a pentagon; and $\frac{1}{4}$ for any other polygon.

4. From the extremities of each side (the angles of the polygon) draw the lines of defence through the inner extremity of the perpendicular.

5. From the angles of the polygon, and on the lines of defence, lay off $\frac{2}{3}$ of the front for the faces of the bastions; their extremities mark the shoulder angles.

6. From each angle of the polygon as a centre, with a radius extending to the furthest shoulder angle (B G, *see Plate*), describe arcs intersecting the lines of defence; chords to these arcs form the flanks of the bastion.

7. For the curtain, draw a line joining the inner extremities of the flanks.

8. The embrasures on the flanks have their line of fire parallel to their lines of defence.

THE TENAILLE is 16 yards in thickness; its faces are formed *on* the lines of defence, its sides run parallel to the flanks of the bastions at 8 yards distance, and its rear parallel to the curtain at 10 yards from it (*Definition 37*).

THE MAIN DITCH.—From the flanked angle of each bastion (*Definition 25*), with a radius of 30 yards for a dry ditch, and 36 yards for a wet one, describe an arc of a circle, and draw tangents to it from the shoulder angle of the bastion opposite to each side (*m m G*, *see Plate*), this forms the counterscarp; and where the lines intersect is the re-entering angle of the counterscarp.

THE CAPONNIÈRE has the crest of its parapet from $7\frac{1}{2}$ to 10 feet high, and drawn at 6 yards on each side of the perpendicular, and parallel to it; its banquette is 5 feet wide, having a palisade; its glacis is 20 yards; and the passage between the demi-gorges of the ravelin and the head of the caponnière is 9 feet.

THE RAVELIN.—From the re-entering angle of the counterscarp set off 100 yards on the prolongation of the right radius (*k*, *see Plate*), from this point to others on the faces of the bastions, at 10 yards from their shoulder angles, trace the faces of the Ravelin, their inner extremities resting on the counterscarp.

THE DITCH OF THE RAVELIN has its counterscarp 20 yards from, and parallel to, the escarp, and rounded at the salient: it runs into, and is of the same depth as, the main

ditch, viz., 22 feet. The embrasures, on the faces of the bastions defending this ditch, have their line of fire parallel to its side.

THE REDOUBT IN THE RAVELIN has its faces parallel to those of the ravelin; its salient is 44 yards from the re-entering angle of the counterscarp; its flanks are 12 yards long, and parallel to its capital; its ditch is 10 yards wide and 11 feet deep.

The Barbettes, or Platforms at the salients of bastions and ravelins are at least 24 feet wide, having easy ramps.

The Terre-plein of the rampart of the enceinte is 24* feet; in ravelins 18 feet, exclusive of banquettes, &c. (*Definitions* 19, 20).

THE COVERED-WAY is 10 yards wide (*Definition* 42), and follows the windings of the counterscarp.

PLACES-OF-ARMS.—Set off as demi-gorges on each side of the re-entering angles of the covered-way 30 yards, and form with the tracing of the covered-way, salient angles of 100°.

TRAVERSES are 18 feet thick, the inclination of their superior slope 3 feet; those at the salient places-of-arms are formed on the prolongation of the faces of bastions and ravelins; those at the re-entering places-of-arms are perpendicular to the counterscarp: there is a third traverse placed in the middle of each side of the covered-way in the front of the ravelins. Banquette 5 feet, palisaded.

The passage round the *outer end* of a traverse is 9 feet clear of all slopes,—this end is supported by a field revetment having a base $\frac{1}{4}$ its height; the inner end is supported

* 15 feet are usually allowed for the platforms for guns, and 25 for a passage in rear, making in all 40 feet. Banquettes are constructed between the platforms.

by the revetment wall of the counterscarp, which is built up against it according with its profile; the base of the revetment at the traverses is $\frac{1}{2}$ of its entire height.

THE GLACIS has its foot 50 yards from the crest of the covered-way, and parallel to it.

PROFILE OF VAUBAN'S FIRST SYSTEM.

The Command of the Enceinte is 22 feet above the country, 20 feet above the tenaille, 3 feet above the ravelin, and 14 feet above the crest of the glacis.

The Command of the Ravelin is 11 feet above the crest of the glacis, and the latter 8 feet above the country.

The Main Ditch and that of the Ravelin are 22 feet below the surface.

The Revetment of the Escarp of the Enceinte is 30 feet high, by 5 feet thick at the top, with counterforts at least 7 feet long (*Definition* 56); that of the tenaille is 15 feet high.

The Counterscarp Revetment is 21 feet high, by 4 feet at the top, with counterforts at least 4 feet long.

The Gorge Revetment of the Ravelin is 19 feet high, and that of the tenaille 16 feet, they are 4 feet thick at the top, with counterforts at least 4 feet long. All the revetments have a slope equal to $\frac{1}{2}$ of their height.

COMMUNICATIONS.—The usual means of communication between the enceinte, its out-works, and the country are by Gateways, Drawbridges, Posterns or Sallyports, Staircases, and Caponnières; the latter are also used to flank undefended ditches.

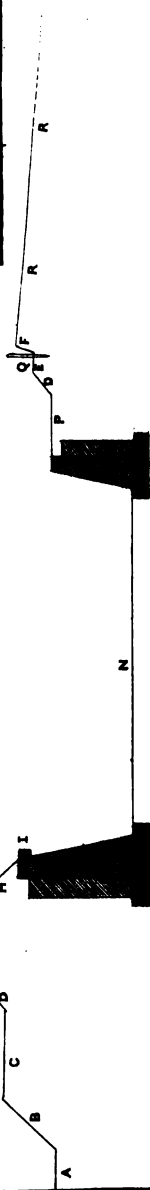
Gates and Bridges should be as few and as well defended as possible.

The Postern, or Sallyport, is a vaulted passage from 5 to 10

Scale of feet.

Fig. 1.

Profile of
Vauban's first system.



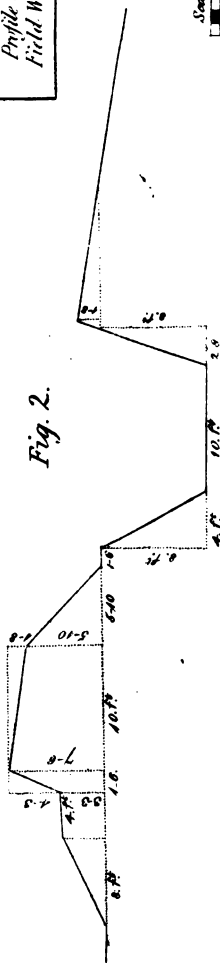
- A. Plane of Site.
- B. Slope of the Ramparts.
- C. Terre-plein of do.
- D. Slope of the Banquette.
- E. Bread of the Banquette.
- F. Interior Slope of the Parapet.

- G. Superior slope of the Parapet.
- H. Exterior slope of do.
- I. Copingstone or Gorden of the Ramparts.
- K. Movement of the Escarp.
- L. Counterscarp.
- M. Foundations.

- N. Dry Ditch.
- O. Movement of the Counterscarp.
- P. Covered-way.
- Q. Palisade.
- RR. Glacis.

Profile of a
Field Work.

Fig. 2.



Scale of 40 feet.

feet wide, and about 7 feet high : in a regular front of fortification it is built in the centre of the curtain, through the rampart into the main ditch, in rear of the tenaille; another postern leads through the thickness of the centre of the tenaille, into the caponnière across the ditch : at the gorge of the ravelin, there are staircases leading up to it, constructed in the masonry. There are also staircases at the re-entering places-of-arms, which are gained by proceeding through the passages on the right and left, between the head of the caponnière and the demi-gorges of the ravelin, and which lead to the covered-way.

GENERAL RULES.

1. A Salient Angle should never be less than 60° .
2. As Salients are the most exposed points, they should be directed, when practicable, towards some natural obstacle ; if not, they must be artificially defended.
3. In tracing a Field-work, let there be as many flank defences as possible.
4. The Angles of Defence should never be less than 90° , and if possible, not more.
5. Avoid the second flank defence as much as possible.
6. Never allow any cover in the vicinity of a work ; and command, if possible, a view of the country on all sides.
7. Dead Angles are to be avoided.
8. A Fortification should be proportioned to the number of men who are to defend it ; and the length of the parapet remaining the same, as much space as possible should be enclosed within it.
9. Before commencing a work, ascertain that you have sufficient means for its completion.

ESCALADING.

1. The ladders provided for escalading are in "joints," which fit into one another, so that each joint of 11 feet 3 inches will give an effective length of 10 feet. Three of these joints form an "entire ladder," weighing about 150 lbs.

2. As works are usually more than 10 feet high, it is always advisable to have two joints fixed and lashed together before proceeding to the assault; the use of the lashing is to prevent their separating on being lowered into the ditch.

3. A ladder placed against an escarp should project about 3 feet above it, in order to ensure a safe landing.

4. Ladders should not be placed in too upright a position for fear of their being topped over by the enemy; on the other hand, too great a slant would render them liable to break down: a slope of about 15° from the perpendicular will be found sufficient, *i. e.*, about $\frac{1}{3}$ of the length of the ladder.

THE ESCALADE.—Supposing the ladders to be arranged on the ground at two paces apart, their broad ends to the front, two joints being lashed together, and the third one placed in their rear; the different Corps are told off,—some for real attacks, others for feigned ones; parties of each being provided with powder bags containing from 10 to 50 lbs. each, with fuzes and gimlets, and also with crowbars and other implements useful in removing obstacles. An attacking party should be told off,—one-half, as a covering party and support, to be extended "*ventre à terre*" along the crest of the glacis to keep down the enemy's fire, and rush to the support the instant required to do so; the other half, or storming party, should be told off into *sections* of

threes,* one to each "entire ladder," the right hand files being provided with saphooks and the means for "spiking" guns; then,

Sling arms.

Right face.

To your respective ladders.

Threes, left wheel.

Quick march.

The front rank disengages to the left, and the rear rank to the right, of the ladder; the rear rank man of No. 3 halts at the narrow or *rear* end of the single joint; his front rank man on the left of the broad end; No. 2 file halts at the narrow end of the double joints; and No. 1 file at the broad or *front* end of the ladder.

Take up ladders.

Forward.

Where there is a counterscarp, a greater number of ladders will be required; and one-third of them should be left at the counterscarp after the assaulting party has descended into the ditch to enable the support to get down, and also to secure a retreat. All the other ladders must be carried broad ends forward to the escarp, and elevated by placing the ends firmly on the ground at about a pace and a half from the wall, the front file facing about to assist the other men. When a ladder requires lengthening, it can be done by raising and drawing the foot of it further from the wall, and adding the other joint.

* By this means all the confusion and loss of time attendant on forming a double column of sub-divisions and *extending* it, and consequently placing men of different companies at the same ladder, would be obviated; and it would also ensure each Company being kept together, a most essential point, and one which should never be lost sight of.

When the proper slant has been given to the ladders,

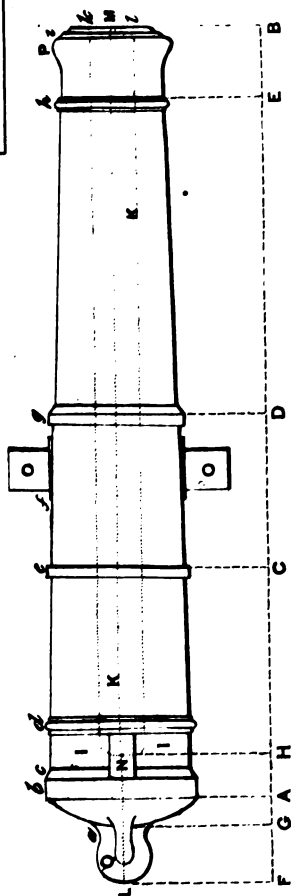
Fix bayonets.

Assault.

The No. 1 files (having the saphooks) mount the ladders first: as the other men come up in succession, they "front form," all "feeling in" towards the centre of the Company as much as circumstances will admit of.

The principal duty of Officers on these occasions is to direct their men steadily and silently, bearing in mind that their chief object is to surprise the enemy and clear the way for the supports.

From 18 P_{der}



- AB. Length of the *Scut.*
AC. First *Ringfore.*
CD. Second *Ringfore.*
DE. *Chave.*
EB. *Muscle.*
AF. *Carabell.*
GH. *Burch.*
I. First *field.*
FK. *Bore.*

- | | |
|------|------------------------------------|
| L.M. | <i>Axis of the Groin.</i> |
| N. | <i>Vent.</i> |
| O. | <i>Tumens.</i> |
| P. | <i>Yield of the Harbors.</i> |
| Q. | <i>Bottom.</i> |
| a. | <i>Nale.</i> |
| b. | <i>Base Ring.</i> |
| c. | <i>Base Ring Pipe.</i> |
| d. | <i>Vent field, Haraged &c.</i> |

- e. First Transverse Ring.
f. Transverse Shoulder.
g. 2^d Transverse Ring & Groove.
h. Middle Spinal & Pelvic.
i. Middle. Muscles only.
bb. Diameter of Base. Colicoid.

GARRISON GUNNERY.

DEFINITIONS.

1. THE CALIBRE of a Gun is the size of the diameter of its bore.

2. THE SIGHTS are two notches, one on the upper part of the base-ring, the other on the upper part of the swell of the muzzle.

3. THE LINE OF METAL is that which is supposed to connect the sights.

4. THE TANGENT SCALE is used to give the necessary elevation to a gun; it is divided into degrees and parts, and, when required, it can be affixed to the gun by means of the groove and screw at the breech; it has a sight at the top, which is used instead of the one on the base-ring.

5. THE DISPART OF A GUN is the difference between half its diameter at the base-ring and at the swell of the muzzle; to aim point-blank, it is necessary to fix on the muzzle a substance equal to the dispart, which will render the line of sight parallel to the *axis of the bore*.

6. THE ANGLE OF DISPART is the number of degrees the axis of the bore would point above the object aimed at, the aim being taken along the line of metal, which in this case is called the "line of metal elevation."

7. THE POINT-BLANK RANGE is when the gun is pointed *direct* at the object aimed at, and is measured from the muzzle of the gun to the first graze of the shot.

A shot during its transit falls 16 feet in the course of a second, 144 feet in three seconds, and so on; consequently, if the time of flight be three seconds, the gun should be pointed 144 feet above the object.

The point-blank range of 32, 24, 18, and 12-pounders, with solid shot, varies from 380 to 260 yards; beyond this,

an elevation of $\frac{1}{4}$ of a degree will be required for every 100 yards up to 1200 yards; beyond which, $\frac{1}{4}$ of a degree for every 50 yards up to 1500 yards, which is considered the extreme effective range. Some authors consider 1200 yards "random practice."

In brass ordnance, 12, 9, and 6-pounders, the point-blank range is 300 yards; each $\frac{1}{4}$ of a degree increases their range 100 yards up to 700 yards; from which, to 1000 yards, each $\frac{1}{4}$ degree gives 75 yards; and, from 1000 yards to 1200 yards, each $\frac{1}{4}$ degree gives an increase of 50 yards: their greatest range is 2200 yards.

8. **ELEVATING** a Gun is raising its muzzle.

9. **DEPRESSING** a Gun is the reverse.

10. **BOUCHING** a Gun is fixing a copper vent into it.

11. **TERTIATING** a Gun is ascertaining that all its proportions are correct.

12. **QUADRATING** a Gun is ascertaining that it is properly placed on its carriage.

13. A GUN is **HONEYCOMBED** when the surface of its bore has holes in it.

14. To **SPIKE** a Gun is to render it unserviceable, by hammering a spike or nail, or even a spike of wood, into the vent, and breaking it off close to the surface. A gun may also be rendered useless by breaking off one of the trunnions, by letting a heavy shot fall on it three or four times.

15. A Gun may be **Unspiked**, and rendered serviceable, by loading and loosely double shotting it, having previously laid a quick match with a small piece of slow match projecting from the muzzle for firing it with.

16. **WINDAGE** is the difference between the diameter of the bore and that of the ball; the less the windage, the greater the velocity and range.

17. **CARRONADES** are short pieces of ordnance, having a loop under the reinforce instead of trunnions; they are made with a chamber, have the muzzle scooped, forming a

“cup,” and have a “patch” on the reinforce; they weigh much less than guns of the same calibre, and are principally used in the Navy (*see Table*).

18. **HOWITZERS** are either of brass or iron, and are used for projecting shells; they are lighter, and, being shorter, are more easily loaded than guns of the same calibre; they are sometimes used as mortars (*see Table*).

19. **MORTARS** are used for throwing shells into a town or fort, blowing up magazines, breaking through roofs, &c.; they are distinguished from each other by the diameter of their bore; they have chambers, in which the powder is concentrated; and the shell, which fits closely to the sides of the piece, receives the full force of the charge when fired.

20. **THE SERVICE CHARGE** of powder is, for heavy guns, $\frac{1}{3}$ the weight of the shot; and, for light ones, $\frac{1}{4}$. This, according to the best authorities, is far too great a proportion; for with the present windage, a charge of $\frac{1}{4}$, or at most $\frac{1}{3}$ of the shot's weight, is considered sufficient for ordinary purposes, and $\frac{1}{3}$ when required for “battering.”

21. **PRICE OF GUNS:** brass guns cost 183*l.* a ton, and iron ones from 20*l.* to 26*l.* a ton.

22. **RECOIL** is the sliding back of a gun on its being fired.

23. **RICOCHET** is the bound and rebound of a ball. In the ricochet of a fortification (which is causing a shot to strike it in several places as it bounds along), the elevation of the gun must not exceed 10°; against Infantry in the field, 3°.

ARTICLES REQUIRED FOR THE SERVICE OF A GUN.

1. A Sponge and a Wad-hook, which are placed resting against the merlon to the right of the gun.

2. Five Handspikes, placed on the platform, one in rear, and two on each side of, and parallel to the gun, with their ends towards the parapet, the points or handles of the two

front ones on the outside and overlapping the ends of the other two.

3. A Linstock, which is the staff to which the slow match is attached ; it is usually stuck in the ground outside No. 5.

4. A Portfire, which is used by No. 5 for firing, when the gun is not provided with a lock.

5. A Powder-horn, and Wire or Pricker ; when tubes are used the former is not required. No. 4 has the box containing them strapped on his right side, and has also a "Thumbstall" on his left thumb for serving the vent.

6. A Wooden Cylinder or Cartouch, for No. 6 to carry the wad and charge in.

7. A Water-bucket, a Broom, and a Shovel.

8. Shot piled to the left of the gun.

9. Charges of Powder, contained in flannel bags, marked on one side with a broad arrow, and tied at the end.

10. Wads.

GARRISON GUN EXERCISE.

The detachment, consisting of a non-commissioned Officer and five men, is halted in rear of the gun and told off:—the non-commissioned Officer, No. 1 ; the right-hand man of the rear rank, No. 2 ; his front rank man, No. 3 ; and so on. (No. 1 is the left-hand man of the rear rank, and commands.)

Right face.

Take post.

Left wheel.

Quick march.

Nos. 2, 4, and 1, on the Right of the gun.

Nos. 3, 5, and 6, on the Left of the gun.

Nos. 2 and 3 in line with the Muzzle Mouldings.

Nos. 4 and 5 ,, the Trunnions.

Nos. 1 and 6 ,, the Vent.

Take post under cover of the Merlons.

All make a half-face outwards, except Nos. 2 and 3.

Quick march,

“feeling in” to Nos. 2 and 3, and halt.

Inwards about face.

This is the position the men should invariably be in when not actually employed at their several duties; when at the gun they must not cover each other.

Run the gun back.

Each man runs out smartly to his place at the gun, facing inwards, seizes his handspike (at the same time taking a side step towards the front of the gun), and places it under the fore part of the axle-tree arm next him.

Heave.

Halt.

Handspikes are raised horizontally across the body, points to the rear, fingers down.

Down.

Handspikes are placed noiselessly on the ground as before. Men take cover under the merlons.

Load.

DUTIES OF EACH NUMBER.

No. 2.

1st. Faces to his left-half, seizes the sponge by the middle of the stave, left-hand uppermost, holds it perpendicularly, faces to his right, marches up to the muzzle of the gun, faces again to the right, placing himself opposite the mouldings; he then takes a side step to his right, bending

F

the knee well over the right foot with the left heel firm, toes well turned out.

2nd. He brings the sponge down horizontally, its head at the quartersight, having his right hand at the middle of the stave, fingers downwards, and his left at the sponge head, fingers up. (When using the rammer end, the fingers of the right hand should be up, and those of the left down.)

To SPONGE.—1st. Enter the sponge head about 6 inches into the bore, move the left hand up to the right one, and force the sponge into the piece until the left hand touches it.

2nd. Move the right hand as far as it can reach on the stave, place the left one next it, and force the sponge home.

3rd. Sink down, bending both knees; take a firm hold of the stave, and give it two full turns outwardly.

4th. Draw the sponge by "giving and taking," that is, drawing it about two feet, and returning it one foot, until it comes out.

5th. Brace both knees, raise the rammer head, and give the sponge two taps against the under part of the muzzle (in order to knock out any fire that might be in the sponge), and replace it at the quartersight.

To TURN THE SPONGE.—Take a side step to the left (in order to obtain more room), give the sponge head a cant upwards, seize the stave when it comes round, and slip the left hand along it to the rammer head, which place at the quartersight, fingers downwards. (*See duties of Nos. 3 and 6.*) No. 6 here hands the charge to No. 3, who puts it into the piece "broad arrow" upwards, and "tied end" to the front; it is *rammed* home by No. 2. No. 6 next hands the shot and wad to No. 3, and when they are in the gun, No. 2 presses them home; he then draws the staff, or stave, about two feet out, separating his hands about 6 inches to make room for No. 3, who assists him to ram home; in doing

so, No. 2 must keep his body well back, his right arm straight, and his left thrown out over the gun at each ram, his hand pointing towards the vent; he must also bend each knee alternately, according to the working of the rammer. After ramming home, No. 2 "springs his sponge," that is, jirks it out, braces both knees, and places the rammer head at the quartersight; he then steps back to his place at the merlon in three motions.

1st. He takes a side step to his rear with the right foot, holding the sponge diagonally across his body, with its head up.

2nd. He brings the left foot up to the right, faces the parapet, and lays the sponge against it to his right.

3rd. Left about face.

No. 2 now holds himself in readiness to "run the gun up" and "elevate."

DUTIES OF No. 3.

At the word "Load," No. 3 steps up to the gun from the merlon, faces to his right, holds out both hands (elbows close to his sides) to receive the ammunition from No. 6, having his right foot placed ready for facing about.

As soon as he hears No. 2 tap the sponge against the muzzle he fronts to the gun, places the charge in it, faces left about to receive the shot, fronts again, and places it in the gun; he then puts his hands behind him to receive the wad, which he also places in the gun.

No. 2 having "pressed in" the charge, &c., No. 3 takes a side step to the left, and places himself in position to assist him in ramming home, observing the same precautions, but throwing his right arm out over the gun instead of the left.

No. 3 steps back to his place at the merlon in the same manner as No. 2, but commencing with the left foot, and faces right about ready to "run the gun up" and "elevate."

DUTIES OF No. 4.

No. 4 steps up to the gun at the same time as No. 2, and whenever he is at the muzzle, No. 4 must be "serving the vent."

After having wiped the vent-field with the palm of his left hand, he places his left thumb (the thumbstall being on it) on the vent, closing it air-tight, keeping his elbow well up, so as to enable No. 1 to take his alignment.

The life of No. 2 depends on the vent being well closed while he is loading.

After the gun is loaded and run up, No. 4 receives the word

Prime.

He "pricks the vent" by running the "wire" into it, and through the flannel containing the charge; he then takes a "tube" from his tube-box, placing it between the two first fingers of his right hand (palm up), and drops it into the vent.

He then gets under cover of the merlon (see Traverse).

DUTIES OF No. 5.

No. 5 remains under cover of the merlon until required to traverse, &c., and fire; when using the portfire, he must raise his right arm well up, the back of the hand to the front, and inclined towards the muzzle of the gun to prevent accidents.

DUTIES OF No. 6.

When it is required to "run back" heavy ordnance, No. 6 helps to "double man" No. 5's handspike. He also supplies No. 3 with ammunition, which he carries in the cylin-

der ; and goes for the shot, which he takes from the pile on the left of the gun.

DUTIES OF No. 1.

No. 1 gives all the words of command, points the gun (see Traverse), and with heavy ordnance, assists No. 4 in running the gun back.

Run the gun up.

The reverse of running the gun back, except that No. 1 guides it with his handspike.

Halt.

Nos. 2, 3, 4, and 5 face to the rear. Handspikes diagonally across the body, "points" outwards, and in line with shoulders.

Traverse (caution).

Trail right.

No. 1 places his handspike, the point resting against the "hind axletree," between the right cheek of the carriage and the "stool bed"; he then takes hold of the quoin and directs the gun.

No. 5 places his handspike under the left cheek of the carriage.

No. 4 steps out, and places his behind the rear right axletree arm.

Heave.

No. 5 heaves towards the right.

No. 4 lifts the wheel.

Halt (as before).

Trail left (if necessary).

The reverse of trail right.

Halt.

Elevate.

Nos. 4 and 5 take a side step outwards. Nos. 2 and 3

place their handspikes under the 1st reinforce, resting them on the step of the carriage, having their arms extended and their hands at the points of their handspikes.

Lower or heave (as required).

No. 1 adjusts the quoin.

Down (as before).

Prime.

No. 4 pricks the vent, and primes either with a "tube," or with powder from the "horn" (as provided).

Fire.

No. 5 takes the portfire, lights it at the slow match, fires as directed, and runs under cover of the merlon.

Change round.

When it is considered necessary to change the position of the men at the gun, this word of Command is given :—

No. 2 becomes No. 4.

No. 4 „ No. 6.

No. 6 „ No. 5.

No. 5 „ No. 3.

No. 3 „ No. 2.

No. 1 stands fast.

Whenever this Command is repeated the men on the left move forward one number, those on the right move back, with the exception of No. 1, who commands; thus each man performs *all* the duties in turn.

Detachment file to the rear.

Outwards face (if at the gun, "right about face").

Quick march.

Right wheel.

No. 6 having wheeled, marks time on his own ground, and Nos. 5 and 3, file in his rear and cover. Nos. 1, 4, and 2 wheel, and form the rear rank.

TABLE SHOWING HOW THE DIFFERENT DUTIES ARE TO BE PERFORMED WITH DECREASED NUMBERS.

Description of Ordnance.	Number of men employed.	Distribution of Duties for Different Guns.					Remarks.
		No. 1.	No. 2.	No. 3.	No. 4.	No. 5.	No. 6.
32 pndr.	1. 2. 3. 4. 5. 6.	C. R.	S. R. E.	L. R. E.	V. P. R. T.	R. T. F.	A.
24 "	1. 2. 3. 4. 5.	C. R.	S. R. E.	L. R. E.	V. P. R. T.	A. R. T. F.	
18 "	1. 2. 3. 4.	C. V. P. R.	S. R. E. T.	L. R. E. T.	A. R. F.		
12 & 9 "	1. 2. 3.	C. V. P. R. F.	S. R. E. T.	A. L. R. E. T.			
Mortars.							
13 inch	1. 2. 3. 4. 5.	C. V.	S. R. E. T. U.	A. L. R. E. T.	R. B. P.	R. B. F.	
10 "	1. 2. 3. 4.	C. V. P.	S. R. E. T. U.	A. L. R. E. T.	B. F.		
8 & 5½ "	1. 2. 3.	C. V. P.	S. R. E. T. U.	A. B. L. R. E. T. P.			
All calculations for the daily service of Guns on Batteries should be at these proportions, and at three reliefs.							

C. commands and points; R. runs up; S. sponges; E. elevates; L. loads; V. serves the vent;
 P. primes; T. traverses; F. fires; A. serves ammunition; B. supplies shell; U. uncaps and cuts
 fuze.

HOT SHOT.—When loading with heated shot, it should be ascertained that there are no holes in the bags containing the charges, through which the powder might escape. When the charge has been “rammed home,” a dry wad is put in, next to that a wet one, and then the shot hot from the furnace. The sponge must always be wetted before being used.

MORTARS.—The charge for mortars is regulated according to “the range required”; and the fuze is cut according to “the time of flight,” that is, the time the shell takes to reach its object (see “Fuzes”).

The elevation of mortars is usually 45° , subject, of course, to greater elevation.

In loading, the bottom of the shell is placed against the charge, and the fuze uppermost.

TO FIND THE CHARGE FOR A GIVEN RANGE.

13-inch Mortar.—To the range, in yards, add half the range, and multiply the sum by $\cdot 03$, for the charge, in ounces.

10-inch Mortar.—To the range, if under 1,350 yards, add 160, and multiply by $\cdot 02$; if above 1,350, add $\frac{1}{3}$ of the range, and multiply by $\cdot 02$, for the charge, in ounces.

8-inch Mortar.—To the range, in yards, add 20, and multiply by $\cdot 015$, for the charge, in ounces.

$5\frac{1}{2}$ -inch Mortar.—To the range, in yards, add 150, and multiply by $\cdot 08$, for the charge, in ounces.

TO FIND THE TIME OF FLIGHT, THE RANGE BEING GIVEN.

Divide the square root of the given range, in feet, by $4\cdot 5$, and the quotient will be the time of flight, in seconds.

TO FIND THE TIME OF DESCENT.

Divide the given height by $16\frac{1}{3}$, and the square root of the quotient will be the time required.

SHELLS.

DIMENSIONS, WEIGHT, &C. OF SHELLS, AND OF SOLID AND HOLLOW SHOT.

Description of Ordnance.	Shells. Empty.	Bursting Powder.	Solid Shot.	Hollow Shot.	Diameter of Fuze-hole.	Remarks.
8 in. or 68 pr.	lb. 48	lb. oz. 2 8	lb. 68	lb. 56	Inches. 1·2	The thickness of a shell should be $\frac{1}{8}$ of its diameter, nearly $\frac{1}{4}$ of the solid ball.
32 „	22	1 0	32	..	1·2	
13 in.	190	6 8	290	..	1·83	
10 „	85	2 10	..	..	1·57
8 „	41	1 14	..	..	1·2
5½ „	14	0 10	..	..	·9

FUZES.

Fuze composition.	Remarks.
oz.	Fuze cases are made of wood, and are "driven" with composition. They must be cut according to the range required, and time of flight; a 13 or a 10-inch fuze burns ·22 of an inch in a second, 8 or 5½ inch fuze burns ·24 of an inch in a second. To find the length of a fuze, multiply the time of flight by ·22 or ·24, according to the shell. The fuze should be carefully fitted to the "fuze-hole."
Saltpetre, pulverized.. 13	
Sulphur, sublimated.. 4	
Pit mealed powder .. 7	
<i>Blind Fuze for night.</i>	
Mealed powder 16½	
Wood ashes 9½	

DESCRIPTIVE TABLE OF

Description of Ordnance.	Length.	Calibre.	Weight.	Charge.	Elevation and Ranges.					Recoil.
					P.B.	2°	5°	8°	12°	
	ft. in.	in.	cwt.	lbs.	yds.	yds.	yds.	yds.	yds.	ft.
68 pounder or 8-in. shell gun	9 0	8·05	65	19	300	1130	1920	2400	3010	6½
56 pndr. gun	11 0	7·65	97	16	..	1390	2260	2760	3560	6½
32 „	9 6	6·41	56	10	380	1130	1950	2335	3030	7
32 „	6 6	6·3	33	5	330	945	1640	2240	2800	11½
24 „	{ 9 6 or 9 0 }	5·82	{ 50 or 48 }	8	360	1125	1850	2240	2960	6½
24 „	6 0	5·75	20	2½	..	750	1280	1750	2200	9½
18 „	9 0	5·29	42	6	360	1080	1780	2240	2830	6
18 „	6 0	5·17	20	3	..	765	1300	1780	2250	9
12 „	9 0	4·62	34	4	360	1075	1700	2200	2800	5
6 „	6 0	3·66	17	2	320	985	1520	1930	2450	4½
10-in. howitzer	5 0	10·0	40	7	..	600	1200	1500	2078	8½
8 „	4 0	8·0	21	4	..	530	855	1227	1725	7½
5½ „	3 10	5·68	15	2	250	550	975	1350	1750	10
13 in. mortar	3 5	13·0	36	9	Elevation 45° Extreme range 2900					..
10 „	2 4	10·0	16	4	„	45°	„	2400	..	..
8 „	1 10	8·0	8	2	„	45°	„	2000	..	..

GARRISON ORDNANCE.

How mounted.		Remarks.																				
{	Upon traversing, or ground platform, as required.	{ This gun to be used with hollow shot, shells, and spherical case; also common case. Useful against shipping, to command roadsteads and approaches.																				
	Sliding carriage recoiling on dead blocks, and traversing platform.																					
	As 68-pounder.	{ For positions requiring very distant ranges.																				
{	Upon bracket carriage and ground platform.	{ The power of this gun points it out as one of the best for distant ranges, against shipping, &c. Hot shot in addition to usual ammunition.																				
	Upon bracket carriage and ground platform, or traversing ditto.																					
	On ground platform.	{ This gun is for flanks, and all purposes of a shorter range than the above. Ammunition the same.																				
{	Upon bracket carriage on ground or traversing platform.	{ Ranges somewhat less than a 32-pounder. Useful for general purposes.																				
	On ground platform.																					
	" "	{ For flanks and short ranges; good gun for spherical and common case; good substitute for 24-pounder carronades in casemates, &c.																				
{	Upon bracket carriage on ground or traversing platform.	{ The range of this gun is considerable, and it is therefore useful against the approach of boats, &c. It is fitted for the land fronts of works which may be exposed to desultory attack, and where rapid firing may be required.																				
	On ground platform																					
	" "	For flanks and short ranges.																				
	" "	{ To be used the same as long 18-pounder, and is often very useful.																				
	" "	Principally intended for saluting batteries.																				
	" "	{ These powerful pieces may be used for faces, flanks, interior defences, and against enemy's cruisers. Their weight is such as to allow their being moved from place to place.																				
{	On ground platform, or dwarf traverse.	A convenient piece on works, and for slightly built towers.																				
<table><tr><td></td><td>Lgth.</td><td>Bdth.</td><td>Hgt.</td></tr><tr><td></td><td>ft. in.</td><td>ft. in.</td><td>ft. in.</td></tr><tr><td>On beds</td><td>5 5½</td><td>3 1</td><td>2 1</td></tr><tr><td>"</td><td>4 4</td><td>3 1</td><td>1 7</td></tr><tr><td>"</td><td>3 3</td><td>3 1</td><td>1 3</td></tr></table>			Lgth.	Bdth.	Hgt.		ft. in.	ft. in.	ft. in.	On beds	5 5½	3 1	2 1	"	4 4	3 1	1 7	"	3 3	3 1	1 3	<hr/> <p>Carronades are 68, 42, 32, 24, 18, and 12 pounds.</p> <p>A mortar is sometimes used for throwing 1 lb. balls, or stones, which are emptied into it on to a wooden bottom, placed next the charge.</p>
	Lgth.	Bdth.	Hgt.																			
	ft. in.	ft. in.	ft. in.																			
On beds	5 5½	3 1	2 1																			
"	4 4	3 1	1 7																			
"	3 3	3 1	1 3																			

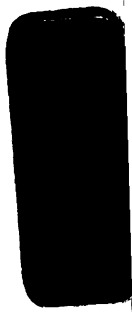
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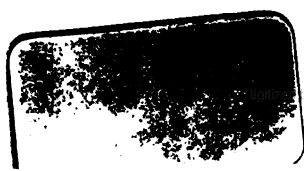
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